



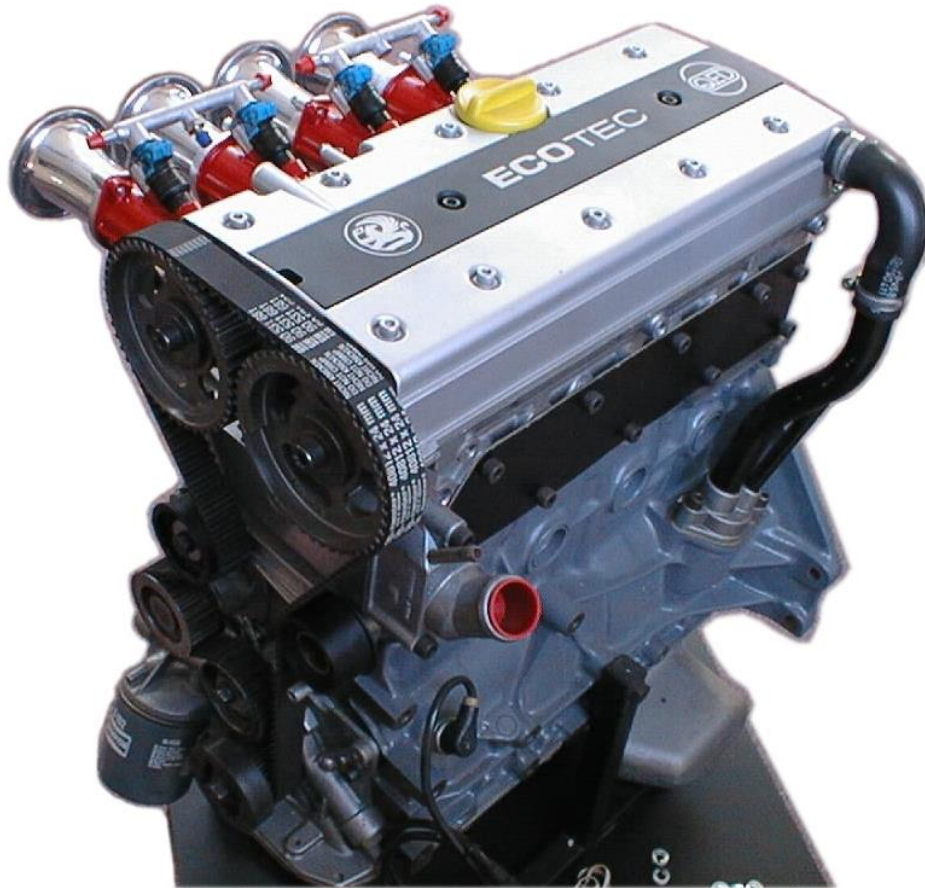
QED Motorsport Ltd

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4 Soar Road, Quorn, Leicestershire, LE12 8BN, UK

## Vauxhall Ecotec X20XEV



## PRODUCT CATALOGUE

FEBRUARY 2018

~ Worldwide parts dispatch via Royal Mail and DHL ~

~ All major credit and debit cards accepted ~

~ Orders received before 2pm are processed same day, subject to availability ~

All prices shown are in pounds sterling.

UK and EC customers who are not VAT registered must add 20% VAT

Our price list is frequently updated but please check the website for current pricing



Our range of products has been developed for professional use in motorsport applications. It is expected that anyone using our products will have experience of working on engines and will follow normal engine workshop practice. It is the responsibility of the fitter to ensure that all components are sized, assembled, and fastened correctly to perform without future failure. We accept no responsibility for damage caused either to or by our products as a result of incorrect or inappropriate assembly or fitment.

We accept payment by cash, cheque, direct bank credit transfer (details available by request), credit card (Access or Visa), or by debit card (Switch/Solo). Cheques should be made payable to 'QED MotorSport Ltd'. For credit card transactions we will require the cardholder's name and address, the card type, card number, expiry date, and start or issue date if applicable. Goods will only be dispatched to the cardholder's address except by prior arrangement and solely at our discretion.

All goods remain the sole property of QED MotorSport Ltd until full and complete payment has been made.

All of the prices herein are quoted in pounds sterling and do not include VAT. Customers within the UK will be charged VAT at the prevailing UK rate. Customers outside of the UK but within the EEC will be

charged VAT at the prevailing UK rate unless the customer provides a valid VAT registration number and accepts liability for the VAT payment. Customers from outside of the EEC will not be charged VAT.

A charge will be made for packaging and delivery. Unless specifically requested choice of courier will be at our discretion.

If goods that we have supplied are no longer required and are returned to us within 14 days of receipt in an unused, undamaged condition, we will refund the value of the goods less a 10% handling charge. If an order is cancelled subsequent to it's dispatch the same handling charge will apply.

Due to the varied nature of the applications for our products customers may wish to carry out mechanical modifications. If the product is permanently altered by any such procedure then QED will be unable to refund based on full price in the unlikely event that the product is later returned.

*Any other notes included herein are suggested guidelines only; if you are in any doubt about any aspect of your engine work then please consult a professional workshop.*

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## VAUXHALL/OPEL ECOTEC 2L 16V XEV

### CAMSHAFTS

We offer two camshafts for the XEV engines, suitable either for a mildly tuned clubman engine, or for a more developed race engine.

#### Q405H

The Q405H is a relatively mild, hydraulic, profile that re-uses the standard cam followers and can be fitted with standard pistons. Road manners are not significantly reduced and it is still usually possible for vehicles fitted with these cams to pass emissions testing.

None the less engines based around these cams, along with suitable induction and engine management, will typically produce around 190-195 bhp.

The Q405H profile camshafts are available either as new cams or as a re-profile from standard cams on an exchange basis.

#### Q450V

The Q450V is a cam profile designed for more dedicated competition use. This is a mechanical profile and requires supporting improvements to the valve train including solid cam followers and up-rated springs. In order to accommodate the much higher lift of these cams deeper valve pockets are also needed (see pistons below).

An engine built around these camshafts will typically make 235-240 bhp at around 8000 rpm.

### VERNIER CAM PULLEYS

In order to ensure optimum performance it is essential that your camshafts open and close the valves at the correct point in the engine operating cycle. This is referred to by most as cam timing. At the least, incorrect cam timing will lose some bhp, at the worst valve/piston contact may occur and many an engine has been reduced to a box of scrap when a touching valve head drops into the cylinder at high revs. To accurately set your cam timing, we suggest using vernier cam pulleys.

These pulleys are very easy to use. A central hub bolts onto the camshaft and is attached with four bolts to an outer, toothed hub, which the cam belt fits around. By slackening the pulley bolts, the two hubs can be moved independently. This makes the camshaft position infinitely variable, enabling cam timing to be accurately set.

We suggest cam timing be accurately checked even on standard engines and corrected by the use of our vernier pulleys if more than a degree or two out.



### FORGED PISTONS

The standard pistons whilst adequate for a road car are not ideally suited to a race engine.



Our forged pistons are both stronger and lighter than the standard components and the design also includes two very specific advantages for the race engine builder.

Firstly the 'flat top' design gives higher compression. Obviously this varies with several other aspects of the engine build but will typically be approx 11.5:1

Secondly the design also includes deeper valve pockets. For the Q405H profile this allows greater flexibility with cam timing, but for more aggressive cam profiles, like our Q450V the deeper valve pockets are an essential requirement.

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## THROTTLE BODY INDUCTION SYSTEMS

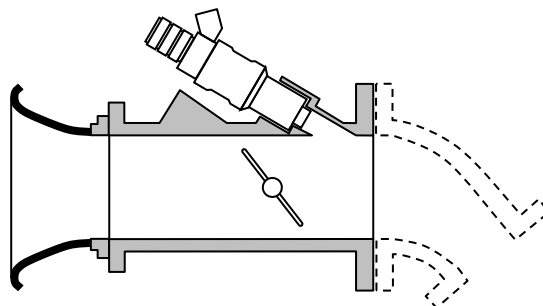
Throttle bodies have become a familiar sight on motorsport engines as a means of achieving unrestricted airflow and of delivering fuel more accurately than carbs. We currently offer two types of throttle body induction system.

### DCOE flanged

Originally designed as a means of upgrading from Weber DCOE carbs to fuel injection this type of throttle body will fit on to any manifold design for DCOEs. For an Ecotec 45mm bore is ideal but they are also available in a 48mm bore size on request.

To maximise the effect of these throttle bodies (or carbs) we can supply a QED custom designed inlet manifold.

DCOE THROTTLE BODIES

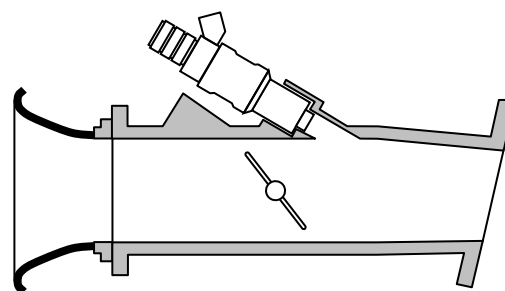


### Direct to Head

Direct to head throttle bodies are a concept that dates back to our work with the earlier Vauxhall/Opel engines and we exclusively offer the same benefits for the Ecotec.

This design requires no inlet manifold and as the name suggests the throttle bodies bolt directly to the cylinder head. The result is throttle bodies that are easier to fit and lighter than any other system available today.

DIRECT TO HEAD THROTTLE BODIES



Available with a 45mm parallel bore to the butterfly and a taper up to the inlet port. Versions are available to take single or double injectors. An integral air bleed screw makes idle speed easier to control.

There are obviously many other designs of throttle body. We have carried out extensive dyno testing to arrive at the best possible solution combining simplicity and effectiveness in a compact lightweight package.

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## ENGINE MANAGEMENT

### ENGINE MANAGEMENT

The standard engine management system is very good for controlling emissions and giving good fuel economy however as soon as an engine is modified the standard settings are no longer of any use. For very light modifications the standard system can be 'chipped' but even then it is seldom ideal.

For a fuel-injected engine our preferred engine management system is from DTA. The controlling inputs are crank speed and throttle position, making both ignition timing and fuelling sensitive to engine speed and load (this is often referred to as 3D mapping). The systems also compensate for air and water temperature to improve cold start and warm up conditions.



To make precise engine mapping easier the DTA systems also have the facility to use an exhaust gas oxygen sensor (commonly called a Lambda sensor).

All of the DTA systems include user programmable outputs for a gearshift warning light and control of auxiliary devices (most commonly used for a fuel pump and a cooling fan). For competition engines, we can also supply systems to include launch control and full power gearshifts.



When we supply a DTA system as part of a kit we have to exercise caution with the engine maps. The ECU will therefore have slightly rich fuelling and slightly retarded ignition. By contrast, systems supplied as part of a complete engine build are always mapped on our dyno facility and will have settings that precisely match the engines requirements. In general the more highly tuned an engine is, the more individual its requirements will be and therefore the more important it is to have the engine specifically mapped.

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# Vauxhall Ecotec (X20XEV) Components Listing

## Cylinder Head Components

Q405H - a hydraulic profile camshaft, new	401001	(each)	
Q450V - a mechanical profile camshaft, new	401009	(each)	£235.00
Q405H - a hydraulic profile camshaft, reprofiled	401020	(pair)	£260.00
Camshaft dowel	401040	(each)	£1.00
Cam cover insert, QED	403028	(each)	£17.50
Cam follower, standard	401051	(each)	£9.50
Top hat shims, for use with steel followers, various sizes			
0.100"	201242	(each)	£2.50
0.110"	201243	(each)	£2.50
0.120"	201244	(each)	£2.50
0.130"	201245	(each)	£2.50
0.140"	201246	(each)	£2.50
0.150"	201247	(each)	£2.50
Head Bolts	203062	(each)	£2.25
Oil filler cap	203030	(each)	£6.25
Oil filler cap seal	203031	(each)	£2.15
Cam follower, steel	201054	(each)	£23.00
Q420 - a mechanical profile camshaft, reprofiled	401003	(pair)	£260.00

## Belt Train

Cam belt, OE			
OE	409010	(each)	£22.85
Not OE	409011	(each)	£17.50
Vernier camshaft pulleys	409004	(pair)	£160.00
Cam belt idler pulley, 52.5/62.7mm			
52.5mm	209120	(each)	£22.75
62.7mm	209121	(each)	£16.30
Tensioner roller	209121	(each)	£39.60
Timing Disc	109004	(each)	£6.00

## Valve Train

Inlet valve, standard	402001	(each)	£8.50
Exhaust valve, standard	402010	(each)	£10.50
Valve stem seals	411039	(each)	£1.50
Valve guide, colsibro, inlet/exhaust			
Inlet	402020	(each)	£8.30
Exhaust	402021	(each)	£7.50
Valve collets, standard	402048	(each)	£0.57
Valve spring retainer, titanium	402051	(each)	£15.00
Valve springs, standard, OE	202032	(each)	£9.60
Valve spring platform, standard, OE	202041	(each)	£2.60
Valve spring, race, double			
Standard	202035	(each)	£8.50
Hard	202035H	(each)	£8.50

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<b>Cylinder Block Components</b>			
Crank pulley	409009	(each)	£20.60
Main cap bolts	404001	(set)	£16.00
Forged Piston, 79mm (1600cc), Flat Top, Accralite	405011A	(each)	£95.00
Water pump, not OE, late type	204046	(each)	£40.00
Flywheel bolts	207030	(each)	£1.70
Main bearing, not OE, various sizes			
Standard	204012	(set)	£57.50
+0.25mm	204016	(set)	£60.00
+0.50mm	204019	(set)	£60.00
End bearings, not OE, various sizes			
Standard	206042	(set)	£40.00
+0.25mm	206044	(set)	£42.50
+0.50mm	206046	(set)	£42.50
Con Rod bolt, standard/race spec (for standard con rods)			
Standard (GM)	206050	(each)	£4.75
Race spec (ARP for std rods)	206051	(each)	£10.50

<b>Flywheels and Clutches</b>			
Sintered clutch plate, for 7.25" (184mm) twin plate assembly, 1"x23	108016	(each)	£72.73
Flywheel, lightweight, steel, standard pattern	407001	(each)	£260.00
Twin plate clutch assembly, 7 1/4" (184mm)			
For sintered plates	108030	(each)	£401.82
For cerametallic plates	108030a	(each)	£485.16
Clutch plate, 228mm, 1" x 23 spline (Ford box), Heavy Duty, Organic, Helix	208004	(each)	£160.65
Clutch cover, standard pattern, fast road/competiton, Helix			
Fast Road (for flat flywheel)	208013	(each)	£169.63
Competition (for flat flywheel)	208014	(each)	£202.28
Fast Road (for later pot flywheel)	208015	(each)	£169.63
Competition (for later pot flywheel)	208016	(each)	£216.87
Clutch release fork	218012	(each)	£47.50
Clutch plate, 228mm, cerametallic, 4 paddle, Helix, various types			
1" x 23 spline	208020	(each)	£195.57
7/8" x 20 spline	208022	(each)	£195.57
Standard centre (20.4mm x 24 spline)	208024	(each)	£195.57
Manta	208026	(each)	£195.57

<b>Gaskets</b>			
Cam cover gasket	411015	(each)	£15.50
Head gasket	411005	(each)	£21.00
Inlet manifold gasket	411020	(each)	£2.00
Exhaust manifold gasket	411018	(each)	£5.75
Bottom gasket set, non OE	411002	(each)	£65.00
Sump gasket	411030	(each)	£13.70
Camshaft seal	211022	(each)	£10.50

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<b>Lubrication</b>			
Oil pump	210114	(each)	£139.00
Cast shallow wet sump pan	210130	(each)	£155.00
Cast shallow wet sump baffle	210131	(each)	£24.00
Oil Pick up pipe, for shallow wet sump	210132	(each)	£29.00
Cast alloy dry sump pan, QED, with fittings	210216	(each)	£487.00
3 stage scavenger/pressure dry sump pump	210210	(each)	£645.00
Dry sump kit, QED, heavy duty, cast sump pan	210200	(each)	£995.00
Dry sump oil tank, small push on unions	110040	(each)	£168.00
Millers CFS, 10W/40	702013	(5L)	£45.25
Millers CRX synthetic gear oil, 75W/90, 5L	702015	(each)	£54.00
Millers CRX LS synthetic gear oil, 75W/90 (for LSD), 1L	702018	(each)	£12.00
Oil pump annulus	210117	(each)	£37.10
Millers CRX synthetic gear oil, 75W/90, 1L	702016	(each)	£10.50
Millers CRX LS synthetic gear oil, 75W/90 (for LSD), 5L	702017	(each)	£62.00

<b>Ignition</b>			
Plug leads, Magnecor	213018	(set)	£110.00
Twin coil unit	214111	(each)	£78.50
Spark plug, various types			
Standard	213001	(each)	£4.00
Fast road	213002	(each)	£4.50

<b>Fuel Injection</b>			
Throttle bodies, 45mm, QED/Jenvey direct to head	414130	(pair)	£475.00
Injector, competition, Weber	214153	(each)	£75.00
Jenvey throttle bodies, fit DCOE style inlet manifold, 45mm bore	214135	(pair)	£405.00
Fuel pump, Bosch	214164	(each)	£85.00
Fuel filter	214168	(each)	£11.50
Fuel filter, bullet, - 6	214169	(each)	£49.50
Aeroquip fuel line, - 6 / - 4			
- 6	214070	(metre)	£15.00
- 4	214071	(metre)	£15.00
Hose end finisher, - 6 / -4, red/blue			
- 6 (red)	214174	(each)	£5.50
- 6 (blue)	214175	(each)	£5.50
- 4 (red)	214176	(each)	£3.10
High pressure rubber fuel line, 1/4" or 5/16"			
1/4"	214172	(metre)	£13.25
5/16"	214173	(metre)	£14.00
Injector, race, Bosch 803 (381cc @ 3bar)	214152	(each)	£106.00
Injector, pico 330, Weber	214154	(each)	£75.00
Fuel line clip	112070	(each)	£0.36
Swirl / Collector Pot	214177	(each)	£145.00
Fuel pressure regulator, various types			
Fast road (8mm push on)	214115	(each)	£78.13
Fast road (-6 fittings)	214115A	(each)	£84.25
Race (8mm push on)	214115B	(each)	£95.26
Race (-6 fittings)	214115C	(each)	£98.66

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# Vauxhall Ecotec (X20XEV) Components Listing

## Engine Management

DTA S40, full engine management ECU	214021	(each)	£495.00
Throttle position sensor	214119	(each)	£52.50
Crank speed sensor, Vauxhall C20XE type	214121	(each)	£47.50
Crank speed sensor, Ford type	214123	(each)	£49.80
Ignition management ECU, DTA S40i	214023	(each)	£350.00
Ignition management wiring loom, DTA			
Vauxhall crank sensor	214105	(each)	£175.00
Ford crank sensor	214104	(each)	£175.00
Full engine management wiring loom, DTA S40/S60/S80/S100			
S40	214083	(each)	£360.00
S60/S80/S100	214065	(each)	£410.00
Air temperature sensor	214116	(each)	£17.50
Manifold air pressure sensor, 1.1/3.0 bar			
1.1 Bar (Barometric)	214117	(each)	£80.00
3.0 Bar (Turbo)	214117A	(each)	£80.00
Water temperature sensor	214118	(each)	£15.50
Crank speed sensor trigger disk, fixes to front pulley, 100/138mm			
100mm	214124S	(each)	£55.00
138mm	214124	(each)	£55.00
Comms lead, DTA	214109	(each)	£45.00

## Air Filters

ITG air filter backplate for QED/Jenvey throttle bodies	217022	(each)	£22.00
Air filter, single piece, standard type, 65-160mm deep			
65mm deep	910002	(each)	£75.00
100mm deep	910003	(each)	£75.00
120mm deep	910004	(each)	£75.00
140mm deep	910005	(each)	£80.00
160mm deep	910006	(each)	£85.00
Air filter, single piece, sausage type, 65-160mm deep			
65mm deep	910010	(each)	£97.00
100mm deep	910011	(each)	£97.00
120mm deep	910012	(each)	£97.00
140mm deep	910013	(each)	£102.00
160mm deep	910014	(each)	£107.00
ITG air filter backplate for QED-Jenvey DTH throttle bodies	217020	(each)	£26.00

## Miscellaneous

Crackle/Wrinkle finish paint, VHT, black, aerosol	710001	(400ml)	£8.45
Blue hylomar	710013	(each)	£3.50
Engine flush	710012	(300ml)	£4.00
Millers Rad Hib Extracool	702103	(1L)	£21.50
Grey engine paint, tin	710002	(250ml)	£8.00
Engine preservative, pumпасol	710011	(130ml)	£3.00

## Specials

Motorsport Kits			
TB160E		(each)	£1,525.00
TB195E		(each)	£1,895.00
TB195E+		(each)	£2,125.00

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## VAUXHALL/OPEL ECOTEC 2L 16V XEV

### MOTORSPORT KITS

We currently offer three levels of upgrade kit for the Vauxhall ECOTEC engine. It must be noted however that these kits have been derived for motorsport applications and are not intended for use in standard road cars i.e. Vectra, Calibra, Omega, etc

#### **TB160E –**

This kit includes a set of our own direct to head throttle bodies for the ultimate induction system. The engine is fully electronically controlled by a DTA ECU, which again responds to engine speed and throttle opening with the relevant sensors included in the kit. A variable fuel pressure regulator (pre set) is included as well as an engine bay wiring loom.

£1525.00

#### **TB195E –**

This kit includes the complete induction and engine management package as featured in the TB160E kit. Increased power output is achieved by the use of a pair of our Q405H motorsport profile cams. To allow for the safe use of a higher rev limit this kit also includes race quality con rod bolts.

£1895.00

For racing applications we can also supply the TB195E kit with vernier cam pulleys to make accurate cam timing easier, as well as a lightweight steel flywheel to improve the rate of engine acceleration.

£2125.00

#### **TB240E –**

This kit features the direct to head throttle bodies and engine management package as above. It also includes a pair of our Q450E camshafts, a set of forged pistons, a pair of vernier cam pulleys, a set of race quality valve springs and suitable platforms, a set of steel mechanical cam followers, and a set of race quality con rod bolts.

£2795.00

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