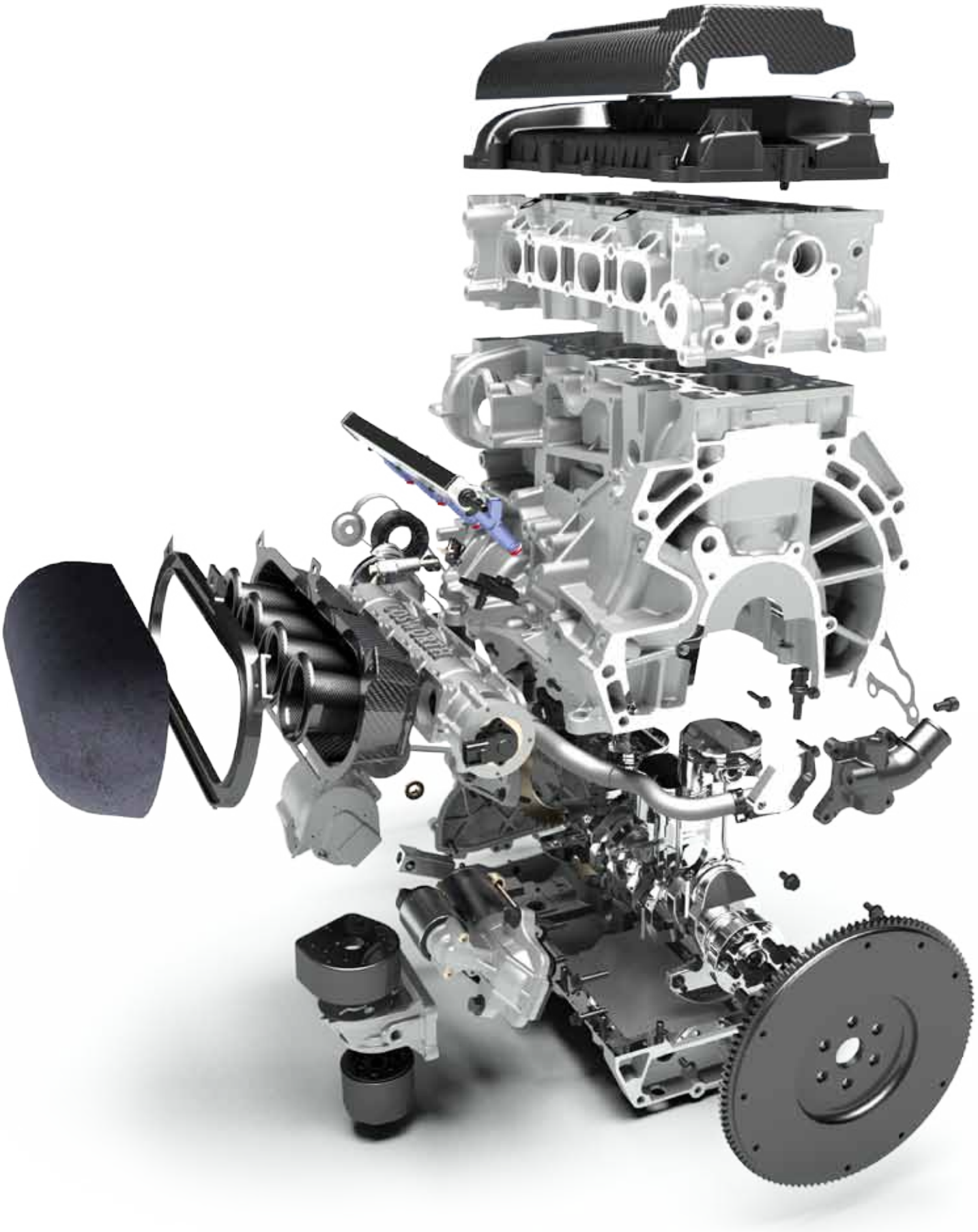
COSWORTH

Advanced Technologies ◈ Evolving Performance

DURATEC ENGINE COMPONENTS

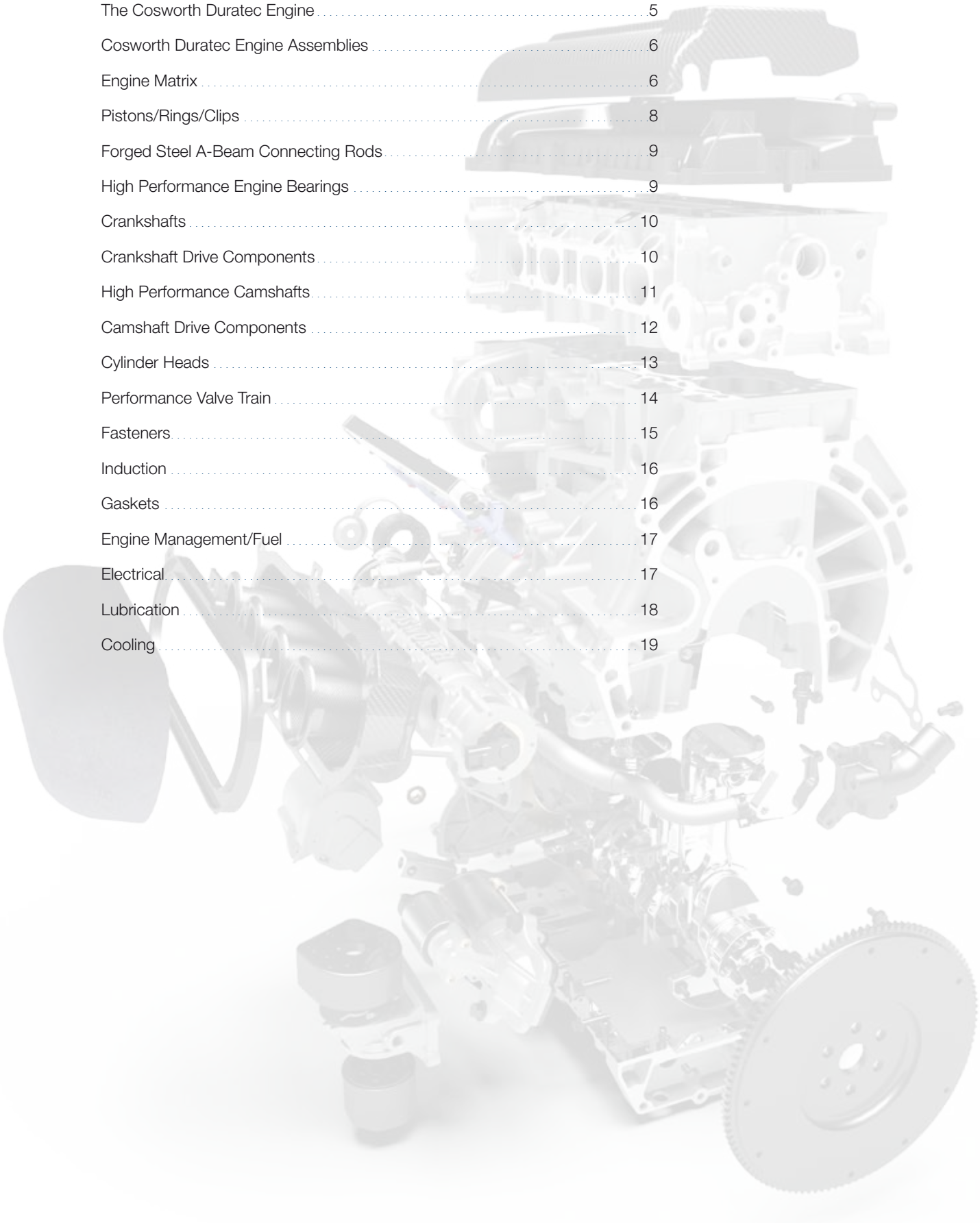
2009/10



COSWORTH

Advanced Technologies ◈ Evolving Performance

Contents



A History of Excellence

Since it was formed in 1958 by Mike Costin and the late Keith Duckworth in a small workshop in London, England, Cosworth has become the most successful engine manufacturer in the history of Formula One. In addition it has achieved enormous success in IndyCar, Champ Car, Rally, Sports Car and Touring Car.

The company soon outgrew its little workshop in Acton and moved to north London, where the Ford 105E engine was developed. Cosworth's first race win followed - at Goodwood in 1960, a Formula Junior win for the young Jim Clark.

By the mid 1960s the company had moved again, to Northampton, and in 1966 a contract was signed with Ford to develop a new three-litre Formula One engine. The legendary DFV was born. Jim Clark again provided the maiden victory, first time out at the Dutch Grand Prix in 1967. The DFV went on to dominate F1 for 15 years with 155 race wins.

In the 1970s the Cosworth DFX ruled the US IndyCar scene with an incredible 151 race wins in a 14-year reign, including 10 driver's championships and 10 Indianapolis 500 victories.

Through the 1980s and '90s, Cosworth continued to provide race-winning power with three World Touring Car titles in 1987, '93 and '94. In Formula One the HB engine won 11 races, while in the US Nigel Mansell's CART championship in 1993 and Jacques Villeneuve's in 1995 were both powered by Cosworth XBs. In 1994 the Zetec V8 F1 engine took Michael Schumacher to his first world driver's title. In rallying the Ford Escort Cosworth and the Duratec-R powered Focus WRC gave Ford yet more success.

In 2004 Cosworth still provided the power to 30% of the F1 grid, as well as to the entire Champ Car World Series and the Ford Focus WRC cars. In 2005 Cosworth powered Red Bull's impressive debut F1 season. In 2006, Cosworth powered the Williams F1 car with a brand new V8 engine which was later acknowledged as the most powerful and highest revving engine on the 2006 grid.

Today, Cosworth continues to enjoy racing success in various series including Formula Atlantic and Super GT. The engineering expertise gained over the last 5 decades have enabled Cosworth to launch a broad array of high performance engine components for the aftermarket. With the product range increasing on a continual basis, Cosworth power is now accessible to everyone.

As of 2010 Cosworth will return to its former glory on the F1 grid. Cosworth's legendary expertise and technical ability will continue to power racing cars at the pinnacle of motorsport alongside the road cars of the future.

AS/EN 9100
FM 22201

ISO 14001
EMS 87074

UK Sales: +44 (0)1604 598300
Email: clsales@cosworth.com

US Sales: +1 310 534 1390
Email: sales@cosworth.com

www.cosworth.com

The Cosworth Duratec Engine

Cosworth has been modifying Ford four cylinder engines since 1959 and the practice continues with the Ford Duratec/Mazda MZR. The Duratec/MZR was designed as a replacement for the Zetec engine and was developed in joint collaboration with Ford and Mazda. The lightweight engine features a cast aluminium reinforced block and main bearing girdle that help reduce vibration and improve overall rigidity. The Duratec is an excellent, affordable building block for high performance use and perfect for "Lotus Seven" inspired sports cars, rally cars and racing. In typical Cosworth tradition, the Duratec/MZR range of parts and engines had been given a two letter designation; the YD. During an extensive development program, Cosworth has engineered and developed a complete range of performance engine components and engine assemblies designed to provide reliable performance for serious racers and performance enthusiasts. Ranging from forged connecting rods and pistons to complete assembled performance engines, Cosworth Engine Components are engineered for maximum reliable power.

Cosworth Duratec Engine Assemblies

Cosworth YD engine assemblies are perfect for high performance or race applications, and available in several levels of performance. Each long block or full assembly is hand built by one of Cosworth's skilled engine builders and features new parts along with select Cosworth high performance engine components. Each configuration has been developed upon undergoing hundreds of hours of testing to ensure the best combination of power and reliability.

For engine builders, we offer the standard 2.0L and 2.3L short block assemblies. All Cosworth full engine assemblies are tested and power verified on our dynamometer before shipping. When purchasing one of our MBE ECU's along with the engine assemblies you will receive the correct base engine calibration pre-loaded into the ECU.

- Built from entirely new parts
- Cosworth Forged Pistons
- Cosworth Forged Connecting Rods
- Cosworth High Performance Bearings
- Cosworth High Performance Camshafts
- Cosworth Modified Cylinder Head
- Precision Blue Print assembly
- Cosworth Barrel Throttle and Air Filter
- High Flow Fuel Injectors
- High output Alternator
- Starter
- Dry Sump

Cosworth Duratec Engine Assemblies	
Part No.	*Description*
20001721	2.0L Performance Crate Engine 205BHP
20001722	2.0L Performance Crate Engine 225BHP
20001723	2.0L Performance Crate Engine 255BHP
20001725	2.3L Performance Crate Engine 220BHP
20001726	2.3L Performance Crate Engine 250BHP
20001727	2.3L Performance Crate Engine 280BHP
PR7296	2.0L Standard Ford Short Block
PR6702	2.3L Standard Ford Short Block

Engine Matrix

● *Standard* ○ *Option* ⊠ *n/a*

		2,0 Litre			2,3 Litre		
		205 bhp	225 bhp	255 bhp	220 bhp	250 bhp	280 bhp
Description	**Part No:**	**20001721**	**20001722**	**20001723**	**20001725**	**20001726**	**20001727**
BASE ENGINE							
Ford 2,0 Duratec Short-block Engine - New		●	●	●	⊠	⊠	⊠
Ford 2,3 Duratec Short-block Engine - New		⊠	⊠	⊠	●	●	●
CRANKSHAFT/PISTONS/RODS							
2,0 Std Cast Pistons (CR 11:1)		●	⊠	⊠	⊠	⊠	⊠
2,0 Forged Pistons (CR 12:1)		⊠	●	⊠	⊠	⊠	⊠
2,0 Forged Pistons (CR 13:1)		⊠	⊠	●	⊠	⊠	⊠
2,3 Std Cast Pistons (CR 9:1)		⊠	⊠	⊠	●	⊠	⊠
2,3 Forged Pistons (CR 12:1)		⊠	⊠	⊠	⊠	●	⊠
2,3 Forged Pistons (CR 13:1)		⊠	⊠	⊠	⊠	⊠	●
Cosworth Piston Ring Pack		⊠	●	●	⊠	●	●
2,0 Std Cast Connecting Rod Kit (up rated bolts)		●	⊠	⊠	⊠	⊠	⊠
2,0 Forged Connecting Rod Kit		⊠	●	●	⊠	⊠	⊠
2,3 Std Cast Connecting Rod Kit (up rated bolts)		⊠	⊠	⊠	●	⊠	⊠
2,3 Forged Connecting Rod Kit		⊠	⊠	⊠	⊠	●	●
2,0 Big End bearings (VP2)		○	○	○	⊠	⊠	⊠
2,3 Big End bearings (VP2)		⊠	⊠	⊠	○	○	○
2,3 Billet Crankshaft		⊠	⊠	⊠	○	○	○

UK Sales: +44 (0)1604 598300
Email: clsales@cosworth.com
US Sales: +1 310 534 1390
Email: sales@cosworth.com
www.cosworth.com

		2,0 Litre			2,3 Litre		
		205 bhp	225 bhp	255 bhp	220 bhp	250 bhp	280 bhp
Description	Part No:	20001721	20001722	20001723	20001725	20001726	20001727
FUEL SYSTEM							
High Flow Fuel injectors				●		●	●
Large Capacity Fuel Rail		●	●	●	●	●	●
CYLINDER HEAD/VALVETRAIN							
Cosworth Level 1 Fast Road Camshafts		●			●		
Cosworth Level 2 Race Camshafts			●			●	
Cosworth Ultra Race Camshafts				●			●
Cam Friction Washer		●	●	●	●	●	●
Race Valve spring		●	●			●	
Ultra Race Valve spring				●			●
Cosworth Cylinder Head Assembly		●	●		●	●	
Cosworth Extrude Honed Cylinder Head				●			●
Heavy Duty Head Bolts		○	○	○	○	○	○
LUBRICATION SYSTEM							
Modine Oil Cooler		●	●	●	●	●	●
High Flow Oil Pump		●	●	●	●	●	●
Cosworth 2 Stage Dry Sump		●	●	●	●	●	●
COOLANT SYSTEM							
Cosworth Large Pulley Water Pump		●	●	●	●	●	●
Thermostat (82° C) & Housing		●	●	●	●	●	●
INDUCTION SYSTEM							
Cosworth Roller Barrel Throttle Assembly		●	●	●	●	●	●
Carbon Fibre Airbox, and Foam Air Filter		●	●	●	●	●	●
Throttle Position Sensor		●	●	●	●	●	●
EXHAUST SYSTEM							
Exhaust Gasket		●	●	●	●	●	●
ELECTRICAL SYSTEM							
Starter Motor		●	●	●	●	●	●
Ignition Coil		●	●	●	●	●	●
Spark Plug (Temp 7)		●	●	●	●	●	●
Loom Kit		○	○	○	○	○	○
ECU (flashed with base calibration)		○	○	○	○	○	○
Calibration Interface Kit		○[1]	○[1]	○[1]	○[1]	○[1]	○[1]
AUXILIARY DRIVE							
Lightweight Alternator (40 Amp)		●	●	●	●	●	●
Lightweight Alternator Brackets		●	●	●	●	●	●
Alternator Pulley (64mm)		●	●	●	●	●	●
Accessory Drive Belt (1,295mm)		●	●	●			
Accessory Drive Belt(1,310mm)					●	●	●
MISCELLANEOUS							
Lightweight Flywheel		○	○	○	○	○	○
Clutch		○	○	○	○	○	○
Spigot Bearing		●	●	●	●	●	●
Heavy Duty Flywheel Bolt Set		○	○	○	○	○	○
Engine Lifting Eyes (Pair)		●	●	●	●	●	●
Cosworth Carbon Coil Cover including Fitting Kit		●	●	●	●	●	●
ENGINE ASSEMBLY AND TEST							
Cosworth Assembled		●	●	●	●	●	●
Engine Hot Test		○	○	○	○	○	○
Full Engine Break-in & Performance Test		○	○	○	○	○	○
Dispatch Kit		●	●	●	●	●	●

[1] *Includes interface cable and software to alter calibration from a personal computer*

Pistons/Rings/Clips

Cosworth forged pistons are produced exclusively in-house at our Northampton, UK facility by engineers and machinists using the very same equipment as our Formula One motorsport pistons. Produced from proprietary alloy, Cosworth YD pistons feature a unique, light-weight skirt profile along with valve relief pockets. They are available for both the 2.3L and 2.0L applications in several compression ratios. Piston sets include 4 pistons, 4 EN39B tool steel pins, 8 pin locks and rings.

Pistons/Rings/Clips	
Part No.	*Description*
KK3706	87.5mm (2.0L - 11:1cr) (2.3L - 12:1cr)
KK3703	87.5mm (2.0L - 12:1cr) (2.3L - 13:1cr)
KK3731	87.5mm (2.0L - 13:1cr) (2.3L - 14:1cr)
YD0602	Single Piston Pin
PP2720	Pin Clip (2 required per piston)
KK3468	Ring Set (4 pistons) (2.0L) (2.3L) 87.5mm

YD0394

UK Sales: +44 (0)1604 598300
Email: clsales@cosworth.com
US Sales: +1 310 534 1390
Email: sales@cosworth.com
www.cosworth.com

Forged Steel A-Beam Connecting Rods

Standard connecting rods should be upgraded when power output levels surpass 220bhp or 7200rpm is exceeded for extended periods of time. Cosworth YD connecting rods are forged from high strength steel and feature a strong but light-weight profile. Total weight is reduced by 45 grams per connecting rod on the 2.3L engine. Heavy duty rod bolts are also included. These A-Beam rods are engineered to withstand high rpm and horsepower applications, and are the same as our 300hp Formula Atlantic YDX race engines. Bushed for a floating pin and sold in matched sets of four.

Forged Steel A-Beam Connecting Rods	
Part No.	*Description*
KK3471	(2.0L) Engine Set Of Forged Steel Rods
YD8068	(2.0l) Single Forged Steel Rod
KK3470	(2.3L) Engine Set Of Forged Steel Rods
YD8004	(2.3l) Single Forged Steel Rod
PR7159	Single Heavy Duty Rod Bolt For Cosworth Rod
PR7092	Single Standard Connecting Rod Bolt

High Performance Engine Bearings

Engine bearings are vital components in a high performance engine. Cosworth performance engineered, multi-layer engine bearings generate less heat than normal bearings by reducing friction. They feature a unique combination of design, metallurgy and engineering to deliver performance in demanding conditions.

High Performance Engine Bearings	
Part No.	*Description*
KK3483	2.0L Rod Bearing Set-Tri Metal VP2
KK3481	2.3L Main Bearing Set (Std)
KK3531	2.3L Rod Bearing Set-Tri Metal VP2

Crankshafts

The standard cast crankshaft is suitable for high performance applications that will not exceed 7700 rpm. An upgraded crankshaft is required for racing use or when sustained engine rpm exceeds 7700 rpm. Cosworth billet steel crankshafts are machined from superior EN40B and nitrited for maximum strength. Each billet steel crankshaft is machined to precise tolerances with a light weight profile. Additionally, a keyway is machined to locate the chain sprocket and pulley.

Crankshafts		
Part No.	*Description*	*Weight (KGs)*
YD0253	2.3L Billet Steel Crankshaft 94mm Stroke	12.2
PR7887	2.0L Billet Steel Crankshaft	13.3
KK3704	2.0L Standard Crankshaft	13.5
KK3456	2.3L (Ranger Style) Crankshaft	15.1

YD0253

KK3456

Crankshaft Drive Components

To maximise engine response and maintain proper ancillary drive speed, Cosworth recommends its steel under driver pulley for high rpm applications. It is available with and without standard style ignition trigger disc for maintaining proper engine timing or for custom applications. A keyed crankshaft chain sprocket is available for use with Cosworth's keyed billet crankshafts. Crankshaft service items are offered for regular replacement.

Crankshaft Drive Components	
Part No.	*Description*
YD8148	Crankshaft Drive Pulley with Steel Trigger Disc
YD0612	Steel Crankshaft Drive Pulley
PR6715	Standard Crankshaft Sprocket
YD0363	Keyed Crankshaft Sprocket
PR7135	Crankshaft Key
PR6703	Rear Crank Seal
PR7068	Front Crank Seal
PR6710	Crankshaft Spigot Bearing
PR6716	Crankshaft Friction Washer
KK3484	Balance Shaft Delete Kit (2.3L)
PR6993	8.5" Clutch - Rear Drive Application T9 Gearbox
PR6590	Lightweight Flywheel

YD0363

PR6590

YD0612

YD8148

UK Sales: +44 (0)1604 598300
Email: clsales@cosworth.com

US Sales: +1 310 534 1390
Email: sales@cosworth.com

www.cosworth.com

High Performance Camshafts

Cosworth has been engineering camshafts for nearly 50 years. This experience coupled with years of innovative multi-valve cylinder head design ensures our camshaft designs are the most efficient in providing maximum usable power across the widest power band. Each cam is ground from a new chill cast billet and finished using the same procedures used in our extreme level race engines. They are available in tested profile combinations covering a wide range of applications. Additionally, Cosworth camshafts are ground with the timing slot positioned for optimum cam timing thereby simplifying installation. Valve springs must be upgraded when exceeding 7200 rpm and 9.5mm lift. Always replace camshaft sprocket fasteners when changing camshafts along with the addition of our camshaft friction washer (YJ0092).

Note: The listed camshafts are not compatible with Mazda variable cam timing feature. Application power levels listed show the potential of the camshaft with suitable performance engine modifications.

High Performance Camshafts							
Part No.	*Type*	*Application*	*Bar Timing*	*Lift (mm)*	*Ramp*	*0.050"*	*Max RPM*
YD0222	Inlet	2.0L 200bhp, 2.3L 220bhp	112	9.5	256	216	7200
YD0716	Inlet	2.0L 220bhp	111	11.3	290	244	8300
YD0224	Inlet	2.0L 220bhp, 2.3L 240bhp	101	11.3	282	242	7800
YD0223	Inlet	2.0L 240bhp, 2.3L 260bhp	111	11.3	282	242	7800
YD0718	Inlet	2.0L 250bhp, 2.3L 280bhp	104	12.5	303	258	8500
YD0714	Inlet	2.3L 300bhp	104	12.5	303	258	8500
YD0173	Exhaust	2.0L 200bhp, 2.3L 220bhp	113	9.5	256	216	7200
YD0717	Exhaust	2.0L 220bhp	103	9.95	266	223	8300
YD0182	Exhaust	2.0L 240bhp, 2.3L 260bhp	103	9.95	262	222	8000
YD0719	Exhaust	2.0L 250bhp, 2.3L 280bhp	100	11.3	290	244	8500
YD0715	Exhaust	2.3L 300bhp	100	11.3	290	244	8500

Camshaft Drive Components

Camshaft drive components in service under severe conditions should be checked regularly and replaced as required. The North American Spec 2.3L front engine cover is offered as an alternative to the Ranger version. Its lack of the large idler pulley provides a clean and uncluttered engine compartment. Please note that the production engines will have one of two styles of chains. Cosworth exclusively offers the 8mm version. Additionally, all of the chain drive sprockets listed are compatible only with the listed.

Camshaft Drive Components	
Part No.	*Description*
PR6777	Cam Cover OEM Plastic
KK3545	Carbon Fibre Coil Cover (Including Fit Kit)
PR7246	(2.0) Timing Chain
PR6731	Chain Tensioner Arm
PR6733	(2.3L) Timing Chain - Ranger Style
PR6734	(2.0/2.3) Timing Chain Long Guide
PR6735	(2.0/2.3L) Timing Chain Tensioner
PR6667	Cam Sprocket
YD0378	Front Cover 2.3L Modified For Crank Drive Pulley (YD8148)
PR6591	Front Cover 2.3L (North American Focus Style)


PR6591


PR6735

PR6733

PR6667


kk3545

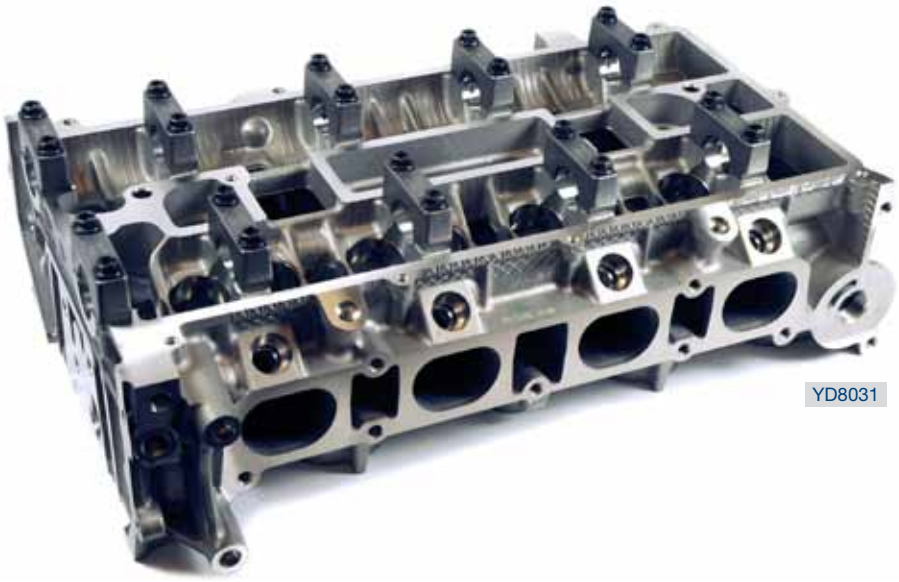
UK Sales: +44 (0)1604 598300
Email: clsales@cosworth.com
US Sales: +1 310 534 1390
Email: sales@cosworth.com
www.cosworth.com

Cylinder Heads

The Cosworth "Race Port" cylinder head represents superb value, offering exceptional flow and performance, and supports applications up to 260 bhp. They feature honed ports and a CNC machined combustion chamber to un-shroud valves. Air flow increase is in excess of 10%. For lower power levels, the Fast Road Head is available as well as a complete range of valve train components to aid assembling and servicing cylinder heads. For maximum power, the "Ultra Race" head includes oversized valves along with CNC machined ports that will support applications to 280 bhp.

Machined Combustion Chamber

Cylinder Heads	
Part No.	*Description*
YD8054	Duratec (2.0L/2.3L) Fast Road Cylinder Head Machined Only
YD8025	Duratec (2.0L/2.3L) Fast Road Cylinder Head Built With "240hp Spec" Cams
YD8031	Duratec (2.0L/2.3L) Race Ported & Machined Cylinder Head - Bare
20000691	Duratec (2.0L/2.3L) Race Ported & Machined Cylinder Head - With Valves & Retainers



YD8031

Performance Valve Train

For maximum performance and reliability, valve train components should be replaced when any cylinder head work is carried out. The YD uses a graded tappet bucket system to set valve lash to the required clearance. In most cases, you will need to replace existing tappets when new camshafts are installed or worn buckets are encountered. A full selection is available.

Performance Valve Train	
Part No.	*Description*
KK3459	(2.0L/2.3L) High RPM Valve Spring Set - 11.5mm Lift (16)
20012351	(2.0L/2.3L) Ultra-High RPM Valve Spring Set - 12.5mm Lift (16)
PR6698	(2.0L/2.3L) Inlet Valve OE Size Each
PR6699	(2.0L/2.3L) Exh Valve OE Size Each
20000692	(2.0L/2.3L) Inlet Valve +1mm Oversize
20001996	(2.0L/2.3L) Exhaust Valve +1mm Oversize
KK3452	(2.0L/2.3L) Valve Spring Retainer Set (16)
KK3453	(2.0L/2.3L) Valve Spring Retainer Keeper(32) (PR6189)
KK3454	(2.0L/2.3L) Exhaust Valve Stem Seal Set (8)
KK3455	(2.0L/2.3L) Inlet Valve Stem Seal Set (8)

Tappet Selection	
Part No.	*Size (mm)*
PR6518	3.000
PR6519	3.025
PR6520	3.050
PR6521	3.075
PR6522	3.100
PR6523	3.122
PR6524	3.142
PR6525	3.162
PR6526	3.182
PR6527	3.202
PR6528	3.222
PR6529	3.242

Tappet Selection	
Part No.	*Size (mm)*
PR6530	3.262
PR6531	3.282
PR6532	3.302
PR6533	3.322
PR6534	3.342
PR6535	3.362
PR6536	3.382
PR6537	3.402
PR6538	3.422
PR6539	3.442
PR6540	3.462
PR6541	3.482

Tappet Selection	
Part No.	*Size (mm)*
PR6542	3.502
PR6543	3.522
PR6544	3.542
PR6545	3.562
PR6546	3.582
PR6547	3.602
PR6548	3.625
PR6549	3.650
PR6550	3.675
PR6551	3.700
PR6552	3.725

UK Sales: +44 (0)1604 598300
Email: clsales@cosworth.com

US Sales: +1 310 534 1390
Email: sales@cosworth.com

Fasteners

Heavy duty fasteners are another vital engine component for high performance and racing use. Replacing original fasteners with higher grade versions improves clamp load and can prevent cylinder head and crankshaft movement. Additionally, many of the original fasteners used on the YD are "torque to yield", single use type. Installing previously torqued hardware can lead to catastrophic engine failure. As some racing classes dictate original hardware is used, Cosworth also offer items that typically need replacing during a routine engine build.

Fasteners	
Part No.	*Description*
PR7115	(2.0L/2.3L) High Performance Head Stud Kit
PR6065	Single Head Bolt Standard
KK3457	OE Cam Bolt Set
KK3451	OE Head Bolt Set (10)
PR7116	(2.0L/2.3L) Main Stud Kit
PR7117	(2.0L/2.3L) Heavy Duty Flywheel Bolt Set
PR6597	Standard Flywheel Bolt
PR7118	(2.0L/2.3L) Heavy Duty Front Pulley Bolt
PR6571	(2.0L/2.3L) Standard Front Pulley Bolt
PP8068	Exhaust Stud
PR6631	M12 x 62.5 (Oil Cooler)
PR6704	M6 x 14 Screws (Rear Oil Seal)
PR6706	M6 x 20 Screw
PR6713	M8 x 103 Screws (Oil Pump)
PR6714	M8 x 20 Screw
PR6727	M10 x 80 Screw (Front Cover)
PR6728	M6 x 30 Screw (Front Cover)
PR6729	M8 x 40 Screw (Front Cover)
PR6730	M10 x 40 Screw (Front Cover)
PR6736	M6 x 23 Screws (Chain Guide)
PR6737	M6 x 27 Bolts (Chain Tensioner)
PR6740	M8 x 12 Screws (Water Pump Pulley Bolt)
PR6741	M6 x 25 Screw (Front Cover/Water Pump)
PR7092	Single Standard Connecting Rod Bolt

Induction

For maximum power and performance, Cosworth has developed a Barrel Throttle System with an integrated manifold that mounts directly to the cylinder head. This F1 style throttle provides complete control with unrestricted flow at full throttle and is designed for typical rear drive applications such as Lotus Seven inspired vehicles, open wheel race or custom engine installations. They are cast from heat treated aluminium with CNC machined barrels, supported by sealed bearings and are available in two sizes. Cosworth Barrel Throttles should be used with a Cosworth carbon fibre air box/intake trumpets and high flow filter.

Designed primarily for front drive applications, the Cosworth Plenum type inlet manifold has been engineered for maximum airflow while maintaining strong, low rpm torque and can be used for custom and turbo applications. Use with YD8066 Throttle Body for maximum air flow.

Induction	
Part No.	*Description*
KK3240	High Flow Performance Inlet Plenum With Fitting Kit
KK3563	(2.0L/2.3L) Barrel Throttle 45mm Incl Fit Kit (Standard And Race Head)
YD8113	(2.0L/2.3L) Barrel Throttle 48mm Incl Fit Kit (Ultra Race Head)
KK3599	(2.0L/2.3L) Barrel Throttle Air Box Kit Inc Filter 100mm Trumpets
PR6874	(2.0L/2.3L) Barrel Throttle Air Filter Element
KK3710	(2.0L/2.3L) Air Box Kit Inc Filter 115mm Trumpets
YD8070	(2.0L/2.3L) Cosworth Barrel Throttle Assembly 45mm
KK3562	Barrel Throttle Fit Kit-Use With YD8070
PR7496	Air Filter Replacement For KK3599 KK3710

YD8070

KK3599

KK3240


KK3450

Gaskets

The OEM gaskets are manufactured from high quality materials and are sufficiently robust to accommodate race applications upto 300bhp.

Gaskets	
Part No.	*Description*
PR6304	Head Gasket (2.0L/2.3L) Bore = 87.5mm
PR6302	Exhaust Manifold Gasket
PR6286	Water Outlet Gasket
PR7235	Crankcase Breather Cover Gasket
PR6723	EGR Gasket


PR6304


PR6302

UK Sales: +44 (0)1604 598300
Email: clsales@cosworth.com

US Sales: +1 310 534 1390
Email: sales@cosworth.com

Engine Management/Fuel

Engineered specifically for Cosworth, our MBE ECU offers complete engine management for the YD series. Additionally, if purchased along with one of our engine assemblies you will receive the correct base engine calibration pre-loaded allowing initial engine start up. For ease of installation on custom applications Cosworth offers a complete engine wiring loom compatible with the YD using its own components and an MBE ECU. An interface kit, which has all of the hardware and PC software needed to access and modify the engine map in the ECU is also available. This allows the customer to optimise the engine's performance, according to their own specific installation.

Engine Management/Fuel	
Part No.	*Description*
PR6314	Throttle Position Sensor
PR6318	Cam Position Sensor
PR6319	Crank Position Sensor
PR5063	MAP Sensor
YD0387	Blank MBE ECU
KK3558	MBE Compatible Loom Kit
KK3559	ECU Flashing Kit - CD Calibration Software
KK3450	(2.0L/2.3L) High Volume Fuel Rail Kit W Injectors (310g Min)
PR6647	Fuel Injector EV6 Type (310g min / 431cc)- 320bhp max

Standard YD fuel injectors will support correct fuelling up to approximately 200bhp. Power levels above 200bhp will require Cosworth high flow fuel injectors and fuel rail and will support power levels up to 300bhp

YD0387


PR6318

PR6319


KK3558

Electrical

Our high output alternator kit is perfect for custom and race applications. Each kit includes an "Edge" motorsport 40 amp/ 12v alternator, low speed water pump pulley, belt, belt tensioner and lightweight cast brackets. For maximum ignition performance and optimum efficiency, Cosworth offers plug mounted ignition coils as used in its Formula Atlantic engines. These are superior in performance to the coil pack style, offering a clean installation and will function with most standalone ECU's.

Electrical	
Part No.	*Description*
KK3740	(2.0L) Alternator kit w Low Speed Pump Pulley 40 amp
KK3739	(2.3L) Alternator kit w Low Speed Pump Pulley 40 amp
PR6932	Alternator (40amp Race)
YD0161	Lightweight Alternator Bracket (Lower)
YD0397	Lightweight Alternator Bracket (Upper)
YD0310	Alternator Pulley Lightweight
YD0159	Aux Drive Belt Tensioner
20004551	Alternator / Water Pump Belt 1283mm
PR6894	Alternator / Water Pump Belt 1320mm
PR6783	Starter Motor
YD8097	Ignition Coil Loom
PR6323	Ignition Coil (Coil On Plug)
PR6084	NGK Spark Plug BR7EFS Heat Range 7
20005761	NGK Iridium Spark Plug TR7IX Duratec Heat Range 7
20005762	NGK Iridium Spark Plug TR8IX Duratec Heat Range 8

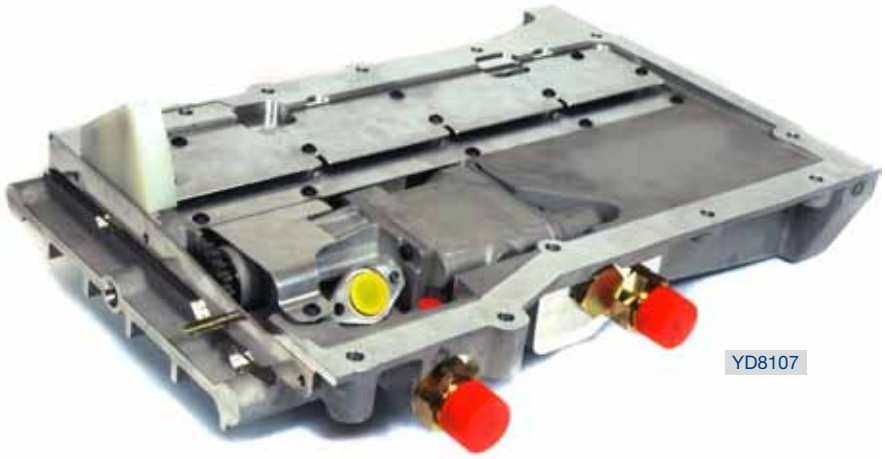

KK3739


PR6323

Lubrication

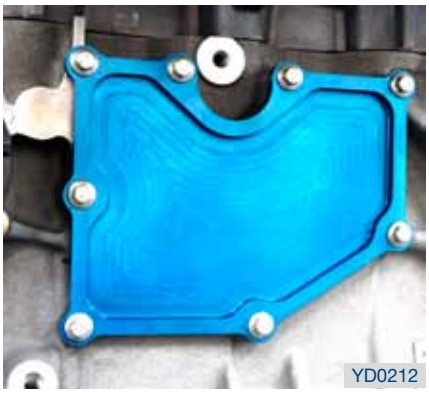
A dry sump is usually required when cornering forces exceed 1g. Additionally, the deep engine block necessitates a dry sump for added ground clearance for many performance applications. A dry sump system will provide superior lubrication and scavenge capacity compared to shallow wet sumps. The Cosworth Dry Sump is manufactured from heat treated high quality cast aluminium alloy and features a 3 stage internally mounted scavenge pump. Driven by an internal drive chain, this arrangement reduces the amount of plumbing associated with an external pump. Oil is extracted directly from the cylinder head oil drain backs. Strengthening ribs have been engineered into the design for added protection and cooling. Cosworth's dry sump has been engineered to be suitable for both longitudinal and transverse engine installations. To increase the scavenge efficiency of the dry sump system, the original plastic breather cover should be replaced with Cosworth's billet aluminium, non-vented version.

Lubrication	
Part No.	*Description*
PR6513	Oil Pump Standard
PR7167	Oil pump, High Volume (Formula Atlantic Only)
PR6572	Oil Scavenge Drive Chain For Dry Sump
PR6717	Oil Scavenge Drive Chain Tensioner
PR6629	Oil Filter Adapter Housing
YD8107	(2.0L/2.3L) Dry Sump Kit (Internal Pump) 3 Stage
YD0212	Crankcase breather cover
YD8071	Crankcase Vent Cover
KK3484	Balance Shaft Delete kit (2.3L)



YD8107

PR6153



YD0212

UK Sales: +44 (0)1604 598300
Email: clsales@cosworth.com
US Sales: +1 310 534 1390
Email: sales@cosworth.com
www.cosworth.com

Cooling

An efficient cooling system is essential in maintaining the engine's performance under all operating conditions. Although the complete system will depend upon the individual installation, it is vital that the water pump and thermostat are working as designed. Questionable parts should be replaced.

Cosworth cylinder head water outlets are designed to simplify installation of a Duratec mounted in an inline, rear drive or any other application that requires additional clearance at the back of the cylinder head. Cosworth offers several types suitable for most installations.

For sustained high speed use, a low speed water pump pulley helps to reduce pump cavitation and maintain a constant flow of water.

With high performance applications a substantial amount of heat is rejected to the oil system. The oil temperature should be stabilised to maintain peak performance. The Cosworth oil cooler kit is designed to cool the oil as it flows through the oil filter. The kit includes the water to oil heat exchanger and a new oil filter housing designed to replace the standard component.

Cooling	
Part No.	*Description*
PR6738	Water Pump (229 Litres/Min)
PR6739	Water Pump Pulley
YD0467	(2.0L/2.3L) Billet Low Speed Water Pump Pulley
PR6595	Thermostat and Housing (82 Deg C)
YD0698	Water Outlet, Cylinder Head-Short
YD8100	Water Outlet, Cylinder Head-Short with Bypass Fitting
PR6285	Water Outlet, Cylinder Head-Long with Bypass Fitting
PR6286	Water Outlet Gasket
PR6895	Coolant Temperature Sensor
20000748	Oil Cooler Kit, Water Type
PR6630	Modeen Oil Cooler

YD0698

PR6285

PR6630

UK Office

The Octagon
St James Mill Road
Northampton, NN5 5RA
United Kingdom

Tel: +44 (0)1604 598300
Fax: +44 (0)1604 598301
Email: clsales@cosworth.com

www.cosworth.com

US Office

3031 Fujita Street
Torrance
CA 90505
USA

Tel: +1 310 534 1390
Fax: +1 310 534 2631
Email: sales@cosworth.com

www.cosworthusa.com

Duratec Engine Components Catalogue v1.0

COSWORTH

Advanced Technologies ◈ Evolving Performance