

COSWORTH

P E R F O R M A N C E E N G I N E
C O M P O N E N T S



A History Of Excellence

Since it was formed in 1958 by Mike Costin and the late Keith Duckworth in a small workshop in Acton, England, Cosworth has become the most successful engine manufacturer in the history of Formula One. In addition it has achieved enormous success in IndyCars, Champ Cars, rallying, sports cars and touring cars.

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.

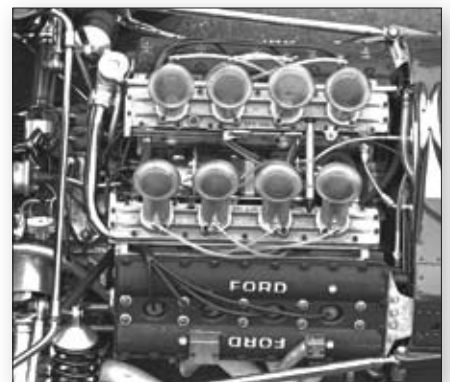
By the mid 1960s the company had moved again, to Northampton, and in 1966 a contract was signed with Ford to develop a new three-litre Formula One engine. The legendary DFV was born. Jim Clark again provided the maiden victory, first time out at the Dutch Grand Prix in 1967. The DFV went on to dominate 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 1 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 leading American open wheel series such as Champ Car and Formula Atlantic. 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.



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Big Valve Cylinder Heads

For over 40 years, Cosworth has been the leader in innovative multi valve cylinder head design for both racing and high performance production cars. The Cosworth CNC Ported Big Valve Cylinder head range is the latest advancement. Modified from new OE cylinder head castings, substantial gas flow improvements and upgraded valve train components

offer superior performance for your high performance engine.



Nissan VQ35DE

Each original cylinder head design is carefully evaluated and tested to establish the improvements required to meet the target performance level. Hours of testing and flow bench validation are used to determine the best advanced port design yielding maximum usable power and response. However, there is more to cylinder head design than just maximum flow. It is critical that port velocity is maintained to ensure drivability and valve train components are matched to guarantee reliable performance. Once all of these factors have been tested and validated, the final port contour is digitized. Using the digitized program, we then reshape both intake and exhaust ports using a 5 axis CNC mill producing an accurate and consistent port shape every time. In addition to re-shaping and enlarging the intake and exhaust ports, most Big Valve Cylinder heads feature a re-shaped combustion chamber to un-shroud the valves increasing air flow and performance. After machining, each cylinder head receives a multi-angle high performance valve job on our precision CNC valve seat cutter. Then each cylinder head is ultrasonically cleaned, serialized and finally hand assembled with select high performance valve train components, ready to install on your engine.

CNC Ported Big Valve Cylinder Heads

Part No.	Application	Specification
KK3670	Subaru WRX STI EJ25 (2.5L)	Pair 2004-2006
KK3671	Nissan VQ35 (3.5L)	Pair 2002-2005
KK3918	Nissan VQ35 (3.5L)	Pair 2006 "Rev Up" version
KK3672	Mitsubishi Evo VII-VIII 4G63 (2.0L)	2000-2005
KK3852	Mitsubishi Evo IX 4G63 (2.0L)	2006 MIVEC
KK3673	BMW MINI Cooper/Cooper S (1.6L)	
20001699	Subaru WRX STI EJ25 (2.5L)	Pair 2007
20000691	Ford Duratec, 2.0L/2.3L	
20000704	Mazda MZR, 2.0L/2.3L	

CNC Ported Big Valve Cylinder Heads with Camshafts

Part No.	Application	Specification
SB8010	Subaru WRX STI EJ25 (2.5L)	Pair with KK3766 Camshafts and valve lash set with cam bucket (USA)
SB8012	Subaru WRX STI EJ25 (2.5L)	Pair with KK3920 Camshafts and valve lash set with cam bucket (Japan/Euro)
20002024	Subaru WRX STI EJ25 (2.5L)	Pair 2007 with KK3766 Camshafts (USA)
20002026	Subaru WRX STI EJ25 (2.5L)	Pair 2007 with KK3920 Camshafts (Japan/Euro)



Mitsubishi 4G63



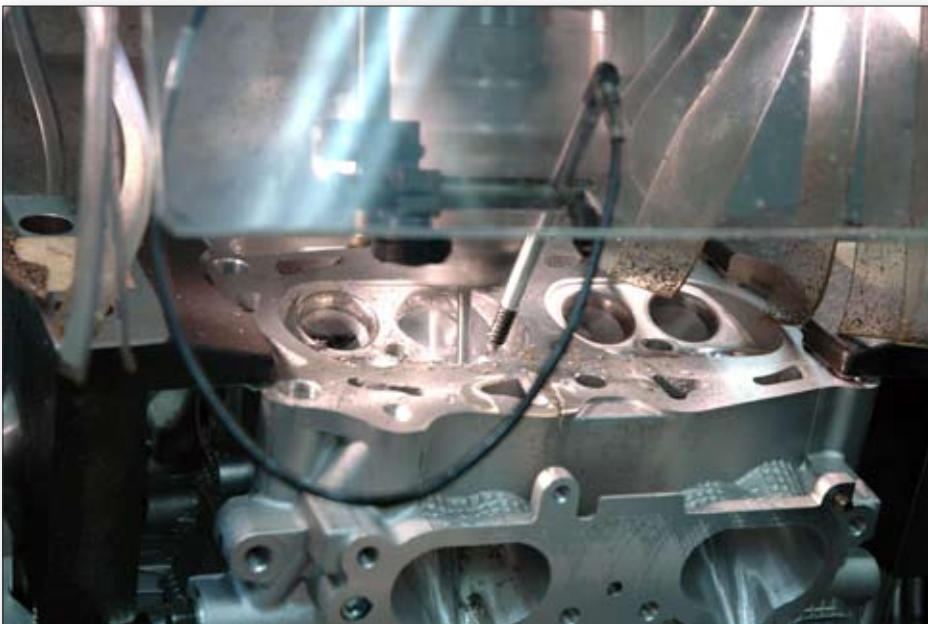
Subaru EJ25

Key Features:

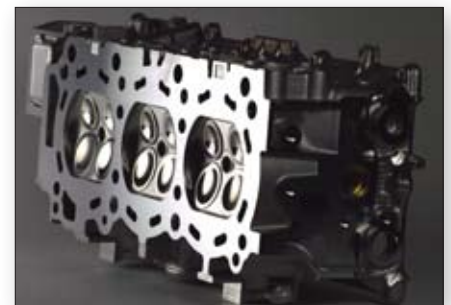
- All new OE Castings
- Enlarged intake and exhaust ports
- Large diameter stainless steel intake valves
- Large diameter inconel exhaust valves
- Hi-rev, dual valve springs
- Titanium retainers
- Hardened steel spring platforms
- Reshaped combustion chamber on most applications
- Flow bench proven design
- Dynamometer tested
- Machined Cosworth logo
- Precision multi-angle valve job
- Pre-assembled, ready to install
- Machined port bore finish
- Knife edge port divider



Cylinder head development



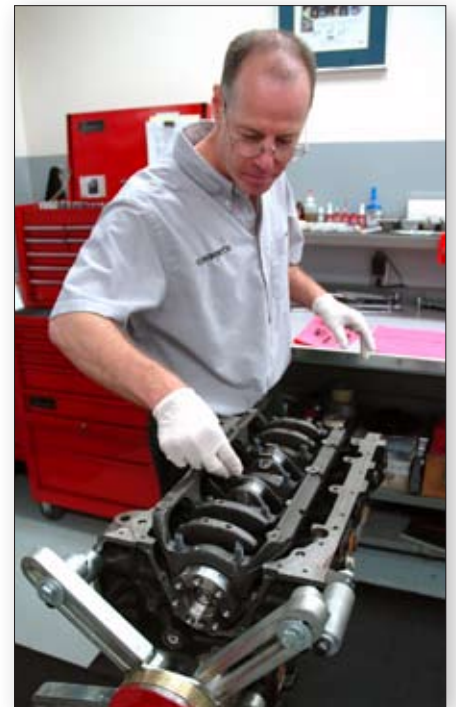
CNC Valve seat cutter



High Performance Short Block Assemblies

Cosworth high performance engine assemblies are the perfect basis for your high performance application. Each version has gone through countless hours of engineering and evaluation to determine the best combination of parts and build specification, ensuring maximum reliable performance. Each Cosworth high performance engine assembly starts with all new select components as the foundation of the performance build. Every block is thoroughly inspected before the cylinders are honed to perfection. We then balance the rotating assembly that includes either a new factory

forged crankshaft or Cosworth billet crank along with Cosworth forged connecting rods, Cosworth tri-metal bearings and Cosworth forged pistons. The motorsport grade parts are then professionally assembled by expert engine builders in the Cosworth engine assembly facility. Each high performance engine assembly includes a complete specification sheet listing all critical dimensions along with a serialized plaque. For maximum performance, combine with a Cosworth CNC ported Big Valve Cylinder Head and camshaft set.



High Performance Short Blocks

Part No.	Application	Specification
SB8005	Subaru STI EJ25 Short Block (2.5L)	Forged Pistons, Rods
SB8007	Subaru STI EJ25 Short Block (2.5L)	Forged Pistons, Rods with 79mm Billet Crank
20000067	Nissan VQ35 Short Block (3.5L)	Lo comp 8.8:1
KK3879	Nissan VQ35 Short Block (3.5L)	Hi comp 11:1
CI8015	Mitsubishi Evo VIII/IX 4G63 Short Block (2.0L)	Forged Pistons, Rods
CI8018	Mitsubishi Evo VII/IX 4G63 Short Block (2.2L)	Forged Pistons, Rods with 94mm Billet Crank

Subaru EJ25 High Performance Short Block 2.5L

The Cosworth EJ25 is an excellent starting point for high performance and track day applications.

- New Subaru EJ25 STI EJ257 Block
- New Subaru EJ25 STI Forged Crankshaft or Cosworth Billet Crank (79mm)
- Cosworth Forged H-beam connecting rods
- Cosworth Forged Pistons (99.5mm) and rings
- Cosworth Tri-metal bearings
- Balanced to within 0.5 gram
- Complete blue-printed assembly
- Ring gap set
- Bearing clearance checked
- Deck height checked
- Connecting Rod side clearance checked
- Crankshaft end float checked



Mitsubishi 4G63 (Evolution VII-IX) High Performance Short Block 2.0L

The Cosworth 2.0L 4G63 is an excellent starting point for high performance and track day applications.

- New Mitsubishi 4G63 Evolution Block
- New Mitsubishi forged crankshaft (88mm)
- Cosworth Forged H-beam connecting rods
- Cosworth Forged Pistons (85mm) and rings
- Cosworth Tri-metal bearings
- Cosworth Heavy Duty main studs
- Piston squirt jets
- Balanced to within 0.5 gram
- Complete blue-printed assembly
- Ring gap set
- Bearing clearance checked
- Deck height checked
- Connecting Rod side clearance checked
- Crankshaft end float checked



Mitsubishi 4G63 (Evolution VII-IX) High Performance Short Block 2.2L

The Cosworth 4G63 2.2L stroker engine combines the perfect bore to stroke ratio, yielding potentially big gains in torque while still allowing the engine to rotate and produce power at higher RPMs.

- New Mitsubishi 4G63 Evolution Block
- New Cosworth Billet Crank (94mm)
- Cosworth Forged H-beam connecting rods
- Cosworth Forged Pistons (86mm) and rings
- Cosworth Tri-metal bearings
- Cosworth Heavy Duty main studs
- Piston squirt jets
- Balanced to within 0.5 gram
- Complete blue-printed assembly
- Ring gap set
- Bearing clearance checked
- Deck height checked
- Connecting Rod side clearance checked
- Crankshaft end float checked



Nissan VQ35DE (350Z-G35) High Performance Short Block 3.5L

The Cosworth VQ35DE high performance short block is the perfect foundation for your high performance application. Available in either high compression 11:1 or low compression 8.8:1 for turbo or supercharged applications.

- New Nissan forged crankshaft (81.4mm)
- Cosworth Forged H-beam connecting rods
- Cosworth Forged Pistons (95.5mm) and rings
- Cosworth Tri-metal bearings
- Cosworth Heavy Duty main studs
- Piston squirt jets
- Balanced to within 0.5 gram
- Complete blue-printed assembly
- Ring gap set
- Bearing clearance checked
- Deck height checked
- Connecting Rod side clearance checked
- Crankshaft end float checked



High Performance Long Block Assemblies

The Cosworth Subaru EJ25 CS600 series is designed for extreme track day use and the demanding performance enthusiast. Each assembly is precision built by one of Cosworth's skilled craftsmen using the finest components from our parts catalogue to ensure maximum reliable power and performance. Starting with a new Subaru EJ257 semi closed deck block, we meticulously hone each bore to guarantee perfect piston to cylinder

wall clearance. The block is then assembled with our Forged Pistons, motorsport grade Forged H-Beam connecting rods along with our high performance rod and main bearings and a new STI forged crankshaft. For maximum performance, an optional steel billet crank is available (CS600X). Once the cylinder block assembly is completed, we install a pair of our CNC machine port-bored Big Valve Cylinder heads with our proven "S2" camshafts complete with

valve lash set to our specifications. The cylinder heads are secured with our high performance 11mm steel studs and sealed with a Cosworth high performance stopper layer steel head gasket. Finally, we install one of our blue-printed, high pressure oil pumps for maximum lubrication. This proven engine combination has been used by top teams to win events in both North America and Europe.



Features

- New Subaru EJ25 STI Engine case
- New Subaru EJ25 STI Forged Crankshaft
- Optional Cosworth Billet Crankshaft (CS600X)
- Cosworth forged H-beam Connecting rods
- Cosworth Forged Pistons and rings
- Cosworth motorsport Tri-metal bearings
- Balanced to within 0.5 gram
- Complete blue-printed assembly
- Enlarged intake and exhaust ports
- Large diameter stainless steel intake valves
- Large diameter inconel exhaust valves
- Hi-rev, dual valve springs
- Titanium retainers
- Hardened steel spring platforms
- Multi angle valve job
- CNC machined port finish
- Knife edge port divider
- Cosworth S2 High lift camshafts
- Valve lash set
- Cosworth high pressure oil pump
- Cam covers
- Cosworth serial number

USA/North American specification

Part No.	Application	Specification
20000162	Subaru EJ25 (2.5L)	2004-2006 with Big Valve Cylinder heads and KK3766 Camshafts - Billet Crankshaft
20000161	Subaru EJ25 (2.5L)	2004-2006 with Big Valve Cylinder heads and KK3766 Camshafts - STD Crankshaft
20002503	Subaru EJ25 (2.5L)	2007 with Big Valve Cylinder heads and KK3766 Camshafts - Billet Crankshaft
20002504	Subaru EJ25 (2.5L)	2007 with Big Valve Cylinder heads and KK3766 Camshafts - STD Crankshaft

European and Japanese specification

Part No.	Application	Specification
20000160	Subaru EJ25 (2.5L)	2004-2006 with Big Valve Cylinder heads and KK3920 Camshafts - Billet Crankshaft
SB8008	Subaru EJ25 (2.5L)	2004-2006 with Big Valve Cylinder heads and KK3920 Camshafts - STD Crankshaft
20002505	Subaru EJ25 (2.5L)	2007 with Big Valve Cylinder heads and KK3920 Camshafts - Billet Crankshaft
20002506	Subaru EJ25 (2.5L)	2007 with Big Valve Cylinder heads and KK3920 Camshafts - STD Crankshaft

Includes engine assembly with cylinder heads, camshafts, oil pump and cam covers

Billet Crankshafts

Increased engine performance often means increased engine speed and load. Original factory crankshafts may not be able to withstand the added stress, resulting in catastrophic failure. Cosworth billet crankshafts are machined from ultra strong EN40B steel, are engineered

to endure the harshest conditions and have been tested to withstand over 1,000HP.

Features Include:

- Superior lubrication
- Profiled counterweights
- High strength
- Light weight



Subaru EJ25



Mitsubishi 4G63

Billet Crankshafts

Part No.	Application	Specification
PR7863	Mitsubishi EVO 4G63 (2.2L conversion)	94mm stroke - Fully counterweighted \ Billet Steel
20001414	Subaru WRX STI EJ25 (2.5L)	79mm stroke - Light weight version \ Billet Steel
20001546	Subaru WRX STI EJ25 (2.5L)	81mm stroke - Light weight version \ Billet Steel

Stroker Engine Kits

Cosworth stroker kits are the perfect way to add displacement, torque and power to your engine. Each kit includes select matched components from our parts list ensuring reliable performance.

Stroker Kits

Part No.	Application
KK3831	Mitsubishi Evo 4G63 (2.2L)
20002500	Subaru EJ25 (2.6L)
20002501	Subaru EJ20 (2.2L) forged (79mm stroke) Crank
20002502	Subaru EJ20 (2.2L) Billet (79mm stroke) Crank



Subaru EJ25 2.6L

Mitsubishi 4G63 (Evolution VII-IX) 2.2L

- Cosworth Forged Pistons (86mm)
- Cosworth Fully Counterweighted Billet Crankshaft (94mm)
- Forged Cosworth Connecting Rods
- Cosworth Rod and Main Bearings
- Cosworth Piston Rings

Subaru EJ25 2.6L

- Cosworth Forged Pistons (99.5mm)
- Cosworth Fully Counterweighted Billet Crankshaft (81mm)
- Forged Cosworth Connecting Rods
- Cosworth Rod and Main Bearings
- Cosworth Piston Rings



Mitsubishi 4G63 2.2L

Forged Connecting Rods

The connecting rod is the vital link between the piston and power. When engine output is increased, the demands placed on the connecting rod increase as well. To ensure engine reliability in all conditions, original connecting rods should be replaced with heavy duty specification parts. Cosworth Forged Connecting Rods are manufactured from high strength

4340 (EN24) steel and machined to exacting tolerances.

Features Include:

- Strong, light weight H-beam design
- Heavy duty rod bolt (260,000psi)
- Manufactured from 4340 (EN24) steel
- Small end bushed for floating pin



Forged Connecting Rods		
Part No.	Application	Specification
20002587	Subaru WRX STI EJ25 (2.5L) set of four	H-Beam
20002587	Subaru WRX EJ20 (2.0L) set of four	H-Beam
20002632	Mitsubishi Evo 4G63 (2.0L) set of four	H-Beam
20002585	Nissan VQ35 (3.5L) set of six	H-Beam
20002588	Nissan RB26 (2.6L) set of six	H-Beam
20002589	Nissan SR20 (2.0L) set of four	H-Beam



Ultra High Performance Engine Bearings

Engine bearings are one of the most vital components within an engine and are often overlooked when considering high performance upgrades. Performance engineered, multi-layer bearings generate less heat than normal bearings by reducing friction. Cosworth race bearing sets feature unique combinations of design, metallurgy and engineering to deliver performance in extreme conditions. Cosworth Race bearings sets are available in two sizes to accommodate most applications. Size “1” bearings are a nominal standard size and are used for most applications. Size “2” bearings feature an additional .001” clearance and should be used when extra clearance is required.



Engineered with the following features:

- High strength overlay plate with reduced thickness for better oil control and less friction
- Hardened steel backing on all connecting rod bearings
- Increased crush for better retention
- 3/4 grooving on Main Bearings providing optimum oil supply
- Tight consistent wall tolerances
- Oversize chamfers where applicable
- Flash plating eliminated for improved heat transfer
- Tested to over 1000 horsepower!

High Performance Engine Bearings		
Part No.	Application	Specification
PR7940	Subaru WRX/STI EJ25/ EJ20 Main Bearing Set - Tri Metal	Size 1
PR7889	Subaru WRX/STIEJ25/ EJ20 Rod Bearing Set - Tri Metal	Size 1
SB0006	Subaru WRX/ STI EJ25/EJ20 Main Bearing Set - Tri Metal	Size 2
SB0007	Subaru WRX/STI EJ25/EJ20 Rod Bearing Set - Tri Metal	Size 2
PR7894	Mitsubishi Evo 4G63 (2.0L) Main Bearing Set - Tri Metal	Size 1
PR7893	Mitsubishi Evo 4G63 (2.0L) Rod Bearing Set - Tri Metal	Size 1
PR7427	Mitsubishi Evo 4G63 (2.0L) Main Bearing Set - Tri Metal	Size 2
PR7428	Mitsubishi Evo 4G63 (2.0L) Rod Bearing Set - Tri Metal	Size 2
PR7429	Mitsubishi Evo 4G63 (2.0L) Thrust Bearing set	
PR7911	Nissan VQ35 (3.5L) Main Bearing Set - Tri Metal	Size 1
PR7910	Nissan VQ35 (3.5L) Rod Bearing Set - Tri Metal	Size 1
PR7853	Nissan VQ35 (3.5L) Main Bearing Set - Tri Metal	Size 2
PR7854	Nissan VQ35 (3.5L) Rod Bearing Set - Tri Metal	Size 2
PR7859	Nissan VQ35 (3.5L) Thrust Bearing Set	
PR7896	Nissan SR20 (2.0L) Main Bearing Set - Tri Metal	Size 1
PR7895	Nissan SR20 (2.0L) Rod Bearing Set - Tri Metal	Size 1
PR7851	Nissan SR20 (2.0L) Main Bearing Set - Tri Metal	Size 2
PR7852	Nissan SR20 (2.0L) Rod Bearing Set - Tri Metal	Size 2
PR7937	Nissan SR20 (2.0L) Thrust Bearing Set	
PR7892	Nissan RB25/26 Main Bearing Set - Tri Metal	Size 1
PR7891	Nissan RB25/26 Rod Bearing Set - Tri Metal	Size 1
PR7655	Nissan RB25/26 Main Bearing Set - Tri Metal	Size 2
PR7656	Nissan RB25/26 Rod Bearing Set - Tri Metal	Size 2

Specification: Size 1 = nominal standard clearance, Size 2 = .001” extra clearance

Forged Pistons

The piston is one of the most important components within the engine. It can be subjected to directional change up to 285 times every second and must withstand acceleration forces of 8500g's. Cosworth high performance forged pistons are designed and engineered to withstand this type of punishment and still perform. All Cosworth

pistons are manufactured using the same methods as our Formula One pistons and include features such as anti-scuff skirt coating, ultra-strong pins, polished top and patented anti-detonation bands. Additionally, each application uses a unique forging to minimize weight and ensure the strongest possible piston design.

Features Include:

- Unique forgings for each application
- 'Xylan' anti scuff skirt coating
- Polished tops (reduces carbon build up and relieves stress)
- Manufactured from proprietary alloy (CosAl 010)
- Ultra strong pin
- Patented anti-detonation bands



Nissan VQ35 High Compression



Forged Piston Sets (Includes pistons, pins and circlips)	
Part No.	Application
20000897	Subaru WRX STI EJ25 (2.5L) 99.5mm 8.2:1cr comes with pins & clips
20000898	Subaru WRX STI EJ25 (2.5L) 99.75mm 8.2:1cr comes with pins & clips
20000899	Subaru WRX STI EJ25 (2.5L) 100.0mm 8.2:1cr comes with pins & clips
20002111	Subaru WRX EJ20 (2.0L) 92mm 8.0:1cr
20002112	Subaru WRX EJ20 (2.0L) 92.5mm 8.0:1cr
20002113	Subaru WRX EJ20 (2.0L) 93mm 8.0:1cr
20002431	Subaru EJ257 (81mm stroker) STD
20002432	Subaru EJ257 (81mm stroker) +0.25mm
20002433	Subaru EJ257 (81mm stroker) +0.50mm
20002489	Subaru EJ20 (79mm stroker) STD
20002490	Subaru EJ20 (79mm stroker) +0.25mm
20002491	Subaru EJ20 (79mm stroker) +0.50mm
20003223	Nissan VQ35 (3.5L) High CR 95.5mm 11.0:1cr (3 x Left Hand & 3 x Right Hand)
20003224	Nissan VQ35 (3.5L) High CR 95.75mm 11.0:1cr (3 x Left Hand & 3 x Right Hand)
20003225	Nissan VQ35 (3.5L) High CR 96.0mm 11.0:1cr (3 x Left Hand & 3 x Right Hand)
20002132	Nissan VQ35 (3.5L) Low CR 95.5mm 8.8:1cr (Turbo application)
20002133	Nissan VQ35 (3.5L) Low CR 96mm 8.8:1cr (Turbo application)
20002134	Nissan VQ35 (3.5L) Low CR 96.5mm 8.8:1cr (Turbo application)
20000832	Mitsubishi Evo IV-IX 4G63 (2.0L) 85mm 8.8:1cr (comes with pins & clips)
20000833	Mitsubishi Evo IV-IX 4G63 (2.0L) 85.50mm 8.8:1cr (comes with pins & clips)
20000834	Mitsubishi Evo IV-IX 4G63 (2.0L) 86mm 8.8:1cr (comes with pins & clips)
20000971	Mitsubishi Evo IV-IX 4G63 (2.2L) 86mm 8.8:1cr (For use with 94mm crank)



Performance Ring Sets



Performance Ring Sets for Cosworth Pistons		
Part No.	Application	Specification
20001515	Subaru WRX STI EJ25 (2.5L)	99.5mm
20001516	Subaru WRX STI EJ25 (2.5L)	99.75mm
20001517	Subaru WRX STI EJ25 (2.5L)	100mm
PR7320	Subaru WRX EJ20 (2.0L)	92mm
PR7321	Subaru WRX EJ20 (2.0L)	92.5mm
20001512	Nissan VQ35 (3.5L)	95.5mm
20001514	Nissan VQ35 (3.5L)	96mm
PR7317	Mitsubishi Evo 4G63 (2.0L)	85mm
20002246	Mitsubishi Evo 4G63 (2.0L)	86mm



Cosworth Tech: Green Pistons

Xylan is a fluoropolymer coating designed for use on various engine components and fasteners. Cosworth pistons use Xylan coating to provide lubrication and control friction, wear resistance, heat resistance, nonstick and release properties and, at the same time, can also protect from corrosion. This is the same coating we use on many of our ultra-high performance race engines.



Mitsubishi 4G63



Subaru EJ25



High Performance Camshafts

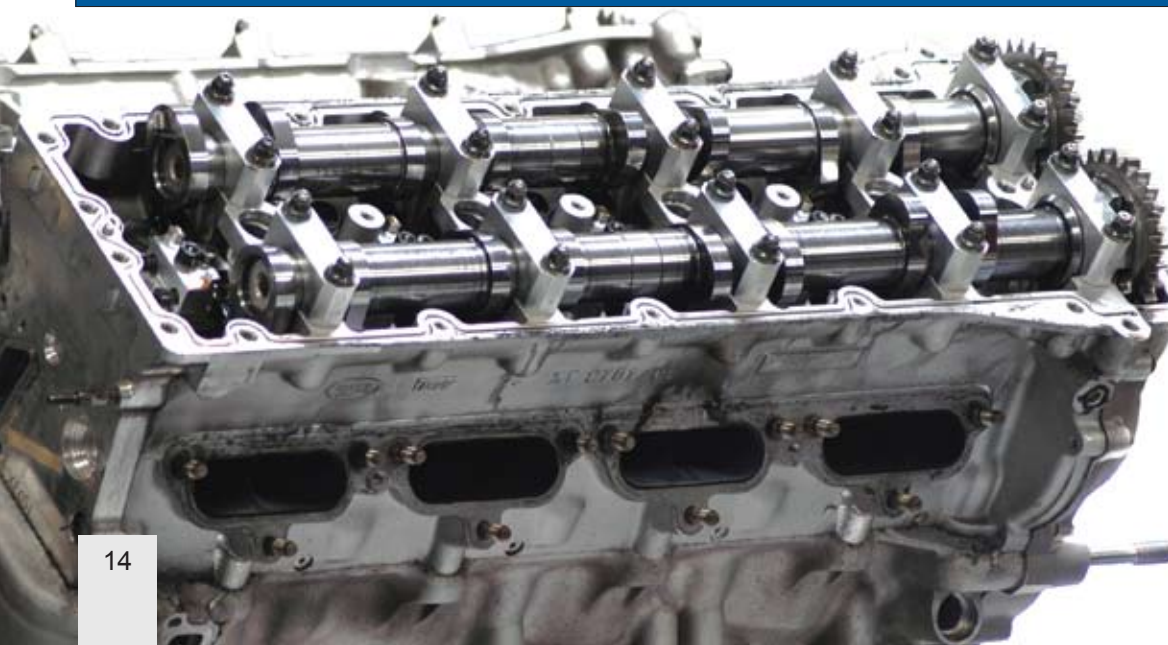
Cosworth has been engineering camshafts for nearly 50 years. That coupled with years of innovative multi valve cylinder head design ensures our camshaft designs are the most efficient in providing maximum usable power across the widest power band.

Each cam is ground from a new billet and finished using the same procedures we use in our extreme level race engines. Cosworth camshafts are the perfect compliment to our CNC Ported Big Valve Cylinder Heads. Our cams are profiled to increase boost response thereby increasing engine torque and power and are fully compatible with our CNC Ported Big Valve Cylinder Heads.

Performance Camshafts		
Part No.	Application	Specification
KK3814	Subaru WRX STI EJ25 (2.5L) Set of four (AVCS Type) North American spec	Int."260" deg. 9.6mm lift / Exh. "260" deg. 9.6mm lift
KK3766	Subaru WRX STI EJ25 (2.5L) Set of four (AVCS Type) North American spec S2 Grind	Int."278" deg. 10.7mm lift / Exh. "274" deg. 10. mm lift
KK3765	Subaru WRX EJ20 (2.0L) Set of four	"272" deg. 10mm lift
KK3920	Subaru WRX STI EJ25/EJ20 Set of four (AVCS Type) Japan / European spec S2 Grind	Int."278" deg. 10.7mm lift / Exh. "274" deg. 10. mm lift
KK3805	Mitsubishi Evo 4G63 (2.0L) Pr (1 intake and 1 exhaust cam) M1 Grind	"264" deg. 10.2 mm lift
KK3806	Mitsubishi Evo 4G63 (2.0L) Pr (1 intake and 1 exhaust cam) M2 Grind	"272" deg. 11 mm lift
KK3921	Mitsubishi Evo IX 4G63 (2.0L) Pr (1 intake and 1 exhaust cam) M2 Grind	MIVEC Intake/Exhaust "272" deg. 11 mm lift
20002517	Mitsubishi Evo IX 4G63 (2.0L) Pr (1 intake and 1 exhaust cam) M3 Grind	MIVEC Intake "280" deg. 11.6mm lift / Exhaust "272" deg. 11 mm lift
PR7832	Mitsubishi Evo 4G63 (2.0L) Intake cam only M1 Grind	"264" deg. 10.2 mm lift
PR7833	Mitsubishi Evo 4G63 (2.0L) Exhaust cam only M1 Grind	"264" deg. 10.2 mm lift
PR7834	Mitsubishi Evo 4G63 (2.0L) Intake cam only M2 Grind	"272" deg. 11 mm lift
PR7835	Mitsubishi Evo 4G63 (2.0L) Exhaust cam only M2 Grind	"272" deg. 11 mm lift

Cosworth Tech - Subaru Cams

Our Subaru AVCS cams are available for both North American and Japanese/European applications. While cam profiles are the same, cam angle triggers are significantly different. AVCS camshafts for North American applications use a series of three slots to activate the cam angle sensor. Japanese/European applications rely on four raised triggers to activate the sensor. If in doubt, check your original cams before ordering.



Features Include:

- Ground from new billets
- Engineered and tested profiles
- Broad power band
- Compatible with Cosworth CNC ported Big Valve Cylinder Heads



Subaru AVCS



Mitsubishi Evo 4G63



Mitsubishi EVO 4G63 Mivec

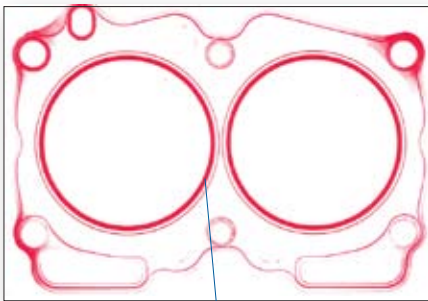
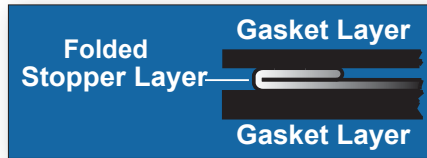
High Performance Head Gaskets

Cosworth High Performance Head Gaskets are engineered to seal in power under the most demanding conditions. Constructed from stainless steel with a folded stopper layer, each application features superior sealing compared to conventional multi layer steel gaskets. Additionally, Cosworth High Performance Head Gaskets

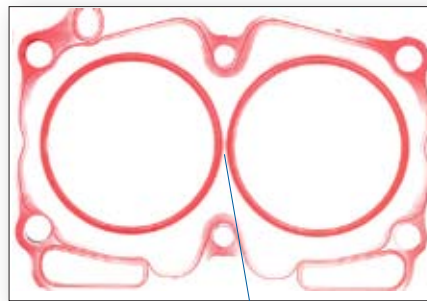
are manufactured from pre-coated die cut stainless steel resulting in uniform coating distribution and consistent shape.

Each gasket is carefully engineered with the following features:

- Individual die cut layers of stainless steel with superior consistency compared to laser cut gaskets
- Pre-coated stainless steel with a 0.25 micron layer of nitrile rubber ensures consistent distribution of coating with no high or low areas
- Manufacturing dimensional tolerance of ± 0.001 "
- Die cut manufacturing process ensures smooth edges, unlike laser cut gaskets
- Cosworth gaskets feature a "folded stopper" layer for additional clamping force around each cylinder. The width of sealing area is specific for each application thereby providing ultimate sealing properties
- Available in a range of thicknesses for specific applications



Folded stopper layer provides complete sealing around entire combustion chamber



Without folded stopper layer, clamping force is limited resulting in incomplete sealing around combustion chamber

High Performance Head Gaskets

Part No.	Application	Specification
20000900	Nissan VQ35DE (3.5L)	Bore = 96mm T ~ 0.6mm (Pair)
20000903	Nissan VQ35DE (3.5L)	Bore = 98mm T ~ 0.6mm (Pair)
20000924	Nissan SR20DET (2.0L)	Bore = 87mm T ~ 1.1mm
20000925	Nissan SR20DET (2.0L)	Bore = 87mm T ~ 1.5mm
20000926	Nissan SR20DET (2.0L)	Bore = 87mm T ~ 1.8mm
20000927	Nissan RB26DETT (2.6L)	Bore = 87mm T ~ 1.5mm
20000928	Nissan RB26DETT (2.6L)	Bore = 87mm T ~ 1.5mm
20000929	Nissan RB26DETT (2.6L)	Bore = 87mm T ~ 1.8mm
20000930	Nissan RB25DET (2.5L)	Bore = 87mm T ~ 1.1mm
20000931	Nissan RB25DET (2.5L)	Bore = 87mm T ~ 1.5mm
20001689	Mitsubishi Evo IX 4G63 (2.0L)	Bore = 86mm T ~ 1.3mm
20001690	Mitsubishi Evo IX 4G63 (2.0L)	Bore = 86mm T ~ 1.5mm
20000909	Mitsubishi Evo IV-VIII 4G63 (2.0L)	Bore = 86mm T ~ 1.3mm
20000910	Mitsubishi Evo IV-VIII 4G63 (2.0L)	Bore = 86mm T ~ 1.5mm
20000913	Subaru WRX STI EJ25 (2.5L)	Bore = 101mm T ~ 0.78mm each
20000916	Subaru WRX STI EJ25 (2.5L)	Bore = 101mm T ~ 1.1mm each
20002145	Subaru WRX STI EJ25 (2.5L)	Bore = 101mm T ~ 1.5mm each
20000919	Subaru WRX EJ20 (2.0L)	Bore = 93mm T ~ 0.78mm each
20000922	Subaru WRX EJ20 (2.0L)	Bore = 93mm T ~ 1.1mm each



Nissan VQ35DE



Mitsubishi 4G63



Stopper Sealing Layer



Subaru EJ25

High performance engines reject a substantial amount of heat through the oil system. Maintaining oil pressure and control along with an increase in actual volume will help dissipate

heat and stabilize oil temperatures. Cosworth oil control components are engineered to combat several problem areas experienced in high performance engines.



Subaru Billet Timing Belt Guide - Part number SB0001

The original sheet metal timing belt guide can flex from belt deflection when subjected to extreme RPM causing the timing belt to skip one or more teeth on the crankshaft sprocket. The Cosworth Billet Timing Belt Guide was developed to control this problem and is machined from solid aluminium with a hard anodized finish. Includes mounting hardware.



Subaru Billet Cam Angle Sensor Bracket - Part number SB0002

Used for mounting the cam angle sensor to the front of Non North American Spec STI cylinder heads. Useful for adapting our cylinder heads to Japanese and European market engines.



Subaru Oil Pan Baffle - Part number 20002499

Oil control can be a problem with high performance and high revving Subaru engines. High crankcase pressure along with the horizontal engine platform restricts rapid oil return from the cylinder heads to the oil pan. Pressure builds in the heads and crankcase causing massive blow by and power loss. The Cosworth Subaru Oil Pan Baffle has been engineered with diverters to control oil returning from the cylinder heads to the pan directing it away from the crankshaft. Additionally, one-way valves prevent oil from re-entering the upper crankcase chamber thereby limiting blow by and preventing oil starvation during hard driving. Manufactured from stainless steel and installs easily between the block and oil pan on both EJ20/EJ25 series engines. Use with our High Volume Oil Pan for maximum oil control.



Subaru EJ20/25 High Volume Oil Pan - Part number 20001238

Sustained high RPM or prolonged high speed driving will result in elevated oil temperatures. Additional oil volume along with improved oil control will reduce damaging oil temperatures. The Cosworth EJ20/EJ25 High Volume Oil Pan is fabricated from both custom and original components resulting in an additional 2qts oil capacity when compared to standard oil pan. Each kit includes powder coated oil pan, mounting hardware, oil pickup and spacer. Will not work with some equal length exhaust manifolds.

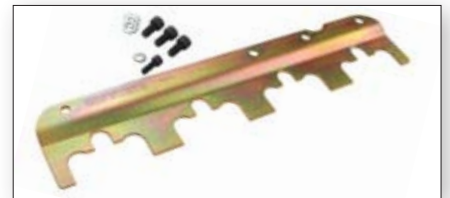
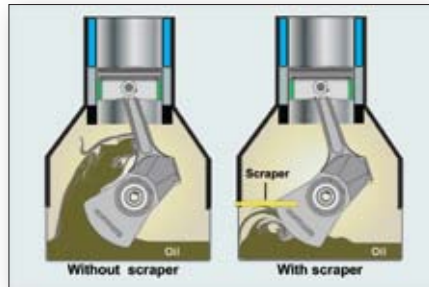
Oil Control	
Part No.	Application
SB0001	Subaru (EJ20/EJ25) Billet Timing Belt Guide
SB0002	Subaru Billet Cam Angle Sensor Bracket (for mounting cam angle sensor on front of head)
KK3928	Subaru (EJ20/EJ25) Blueprinted Oil Pump with high pressure mod & install kit
20001185	Subaru (EJ20/EJ25) High Volume/Pressure Blueprinted Oil Pump & install kit
20001238	Subaru (EJ20/EJ25) High Volume Oil Pan
20002499	Subaru (EJ20/EJ25) Oil Control Baffle
20001382	Mitsubishi Evo VII-IX 4G63 (2.0L) Crankshaft Oil Scraper



Mitsubishi 4G63 Crankscraper - Part number 20001382

The Cosworth 4G63 Crankscraper is engineered to reduce parasitic drag on the crankshaft caused by oil accumulation that surrounds the crankshaft during rotation. This oil buildup causes additional drag and can reduce power output. Additionally, overall oil control is improved by keeping oil in the sump. Especially useful in high rpm and race applications. Mounts

to main bearing girdle. Designed from 2.6 mm (12gauge) steel plate and includes required mounting hardware.



Subaru EJ20/25 Oil pump - High Pressure - Part number KK3928

High performance engines require additional oil pressure because of the increased demand placed upon various components within the engine. The Cosworth High Pressure Subaru EJ20/EJ25 series oil pump is modified to increase oil pressure helping to ensure superior lubrication. Each pump is carefully inspected and deburred for unobstructed oil flow. Perfect for high performance daily use Each kit includes all required mounting hardware and seals.

Subaru EJ20/25 Oil pump - High Volume - Part number 20001185

Increasing oil volume will help to prevent bearing damage and engine failure. Additionally, sustained High RPM use may cause oil starvation at the rod and main bearings. The Cosworth High Volume Subaru EJ20/EJ25 series oil pump utilizes a completely new inner and outer 12mm rotor to increase volume by

20%. Suggested applications include drag, track day and race use. Each kit includes all required mounting hardware and seals.



Pump Gear: 10mm vs 12mm



Ultra High Performance Head Studs

Essential for high performance engine builds, heavy duty head studs reduce cylinder head movement in high boost or high compression engines optimizing cylinder head to block sealing. Cosworth Ultra High Performance Head Studs are manufactured from H11 tool steel with 260,000psi tensile strength

and come complete with nuts and washers. Manufactured with hex broach end for ease of installation.



High Performance Head Stud Kits

Part No.	Application
20002440	Subaru WRX STI EJ25/EJ20 (2.5L) 11mm
20002439	Subaru WRX STI EJ25/EJ20 (2.5L) 14mm (extensive block machining required)
20002441	Nissan VQ35 (3.5L) 11mm
20002442	Mitsubishi Evo 4G63 (2.0L) 11mm
20002443	Nissan RB26DETT (2.6L) 11mm
20002444	Nissan SR20DET (2.0L) 12mm

High Performance Valve Train

High Performance Valves

Large diameter valves are essential for improved air flow. Cosworth high performance intake valves are

produced from high quality stainless steel for maximum durability. Exhaust valves are machined from Inconel for high temperature (2400° F) reliability. Each valve features swirl polished

back for improved air flow and dished face for additional weight reduction. Cosworth high performance valves are compatible with Cosworth Ultra Race Valve Spring Kits.

Performance Valves

Part No.	Application
PR7559	Valve, Inlet +1.0mm Subaru EJ25 - Stainless Steel (37.0mm)
PR7558	Valve, EX +1.0mm Subaru EJ25 - Inconel (33.0mm)
PR7500	Valve, Inlet +1.0mm Mitsubishi 4G63 - Stainless Steel (35.0mm)
PR7501	Valve, Ex +1.0mm Mitsubishi 4G63 - Inconel (31.5mm)
PR7602	Valve, Inlet +1.0mm Nissan VQ35 - Stainless Steel (38.15mm)
PR7603	Valve, Ex +1.0mm Nissan VQ35 - Inconel (32.35mm)



Ultra Race Valve Spring Kits

Cosworth Ultra Race Valve Spring Kits are engineered for use in situations that require valve control in extreme conditions. Each kit consists of dual valve springs

with matched lightweight titanium retainers, keepers, and hardened steel spring seats. Cosworth Ultra Race Valve Springs are wound from the highest quality chrome silicone steel with chamfered ends and are

heat treated and stress relieved for long term reliability. Ultra Race Valve Spring kits are compatible with Cosworth high performance valves.

Ultra-High RPM Valve Spring Sets

Part No.	Application
KK3813	Mitsubishi Evo 4G63 (2.0L) Ultra-High RPM Dual Valve Spring / Titanium Retainer set
KK3839	Subaru EJ25 STI (2.5L) Ultra-High RPM Dual Valve Spring / Titanium Retainer set
20002550	Nissan VQ35 (3.5L) Ultra-High RPM Dual Valve Spring / Titanium Retainer set

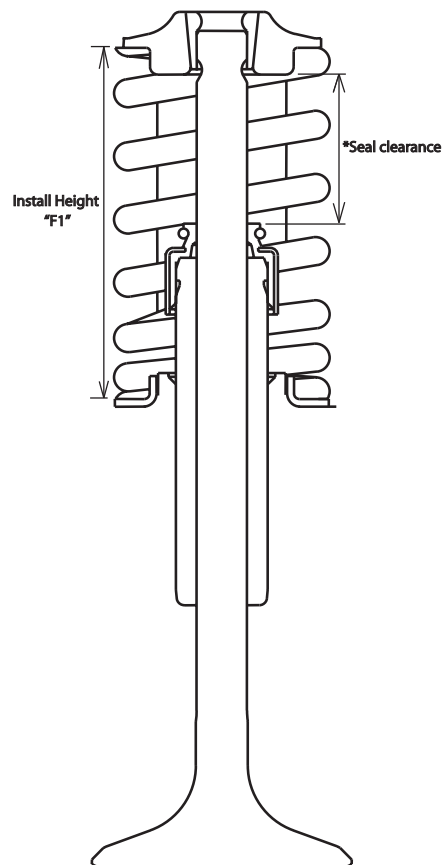


High RPM Valve Springs

Cosworth High RPM Valve Springs are the result of countless hours of engineering, testing and validation ensuring the best possible spring for high performance applications. Cosworth High RPM Valve Springs are wound from the world's finest Japanese Kobe steel and feature dual chamfered ends to reduce wear on seats and retainers. Each spring has been engineered with increased seat pressure along with higher lift

capability for optimum performance potential and improved valve control. Single spring design allows easy installation with no machining required and is perfect for typical high performance use.

- Manufactured from the finest Japanese Kobe steel
- Single spring design for easy installation
- Dual chamfered ends
- Increased performance



High RPM Valve Spring Sets

Part No.	Application
20000164	Mitsubishi Evo VII-IX 4G63 High RPM Single Valve Spring set (16)
20000166	High RPM Single Valve Spring set (16) Subaru WRX STI EJ25 (2.5L) EJ20 (2.0L)
20000163	High RPM Single Valve Spring set (24) Nissan VQ35 (3.5L)
20000168	High RPM Single Valve Spring set (16) Nissan SR20DET (2.0L)
20000169	High RPM Single Valve Spring set (24) Nissan RB26 (2.6L)
20000167	High RPM Single Valve Spring set (16) BMW MINI Cooper/Cooper S (1.6L)



Mitsubishi 4G63



Subaru EJ20/EJ25



Nissan VQ35DE

Valve Train Specification (L1=Install Height, F1=Force @ L1, L2=Max Lift, F2=Force @ Max Lift)

Part No.	Application	Free Height	L1 mm	F1 N	F1 lbs	L2 mm	F2 N	F2 lbs	Max Lift	Coil Bind
20000167	Mini 1.6 Tritec	48.85	43.0	348	80	33.0	944	212	11.0	30.7
20000164	Mitsubishi EVO 7-9	47.00	38.1	381	85	26.1	900	202	12.0	24.3
20000169	Nissan RB26	49.30	41.9	359	81	29.9	941	212	12.0	28.4
20000168	Nissan SR20	46.00	39.0	365	82	27.5	964	217	11.5	25.4
20000163	Nissan VQ35DE	46.00	38.0	289	65	24.5	775	175	13.5	22.9
20000166	Subaru EJ 2.0/2.5	42.00	36.0	275	62	25.0	780	175	11.0	23.2
KK3813	Mitsubishi EVO 7-9	50.00	38.1	512	115	26.9	1268	285	12.0	25.7
20002550	Nissan VQ35DE	47.00	38.0	378	85	23.9	1183	266	14.1	22.6
KK3829	Subaru EJ 2.0/2.5	46.10	36.0	356	80	22.1	1019	229	13.9	20.8

All dimensions are in millimetres unless otherwise specified

VQ35 Twin Plenum Inlet Manifold

The Cosworth Twin Plenum Inlet Manifold for the Nissan VQ35DE has been designed to enhance mid-range and high RPM power. It features increased plenum volume for improved high RPM power while torque enhancing velocity stacks improve mid-range power. With performance derived from countless hours of development including computational fluid dynamics, the Cosworth Twin Plenum Inlet Manifold is perfect for both normally aspirated and forced induction applications. Cast from lightweight aluminium alloy with carbon fibre end caps and includes all required mounting hardware. Will fit with original strut tower brace. Can be used with the factory fuel rail system or the Cosworth High Volume Fuel Rail kit.



Induction / Fuel	
Part No.	Application
20000063	Nissan VQ35DE (3.5L) Twin Plenum Intake Manifold with carbon plenum covers
KK3905	Nissan VQ35DE (3.5L) High Volume Fuel Rail kit



VQ35 High Volume Fuel Rail System

The original factory VQ35DE fuel rail arrangement is limited in performance. The Cosworth VQ35 High Volume Fuel System features high volume anodized fuel rails, with o-ringed fittings and is fully configurable for various applications. Each system includes sleeved high pressure fuel lines along with a CNC machined distribution block that includes an additional port for various sensors. The Cosworth High Volume Fuel Rail System can be used with original or various aftermarket injectors.



Disclaimer



The products in this catalogue require professional installation to ensure correct operation. Cosworth will not accept responsibility for damage to vehicles as a result of improper installation of our products.

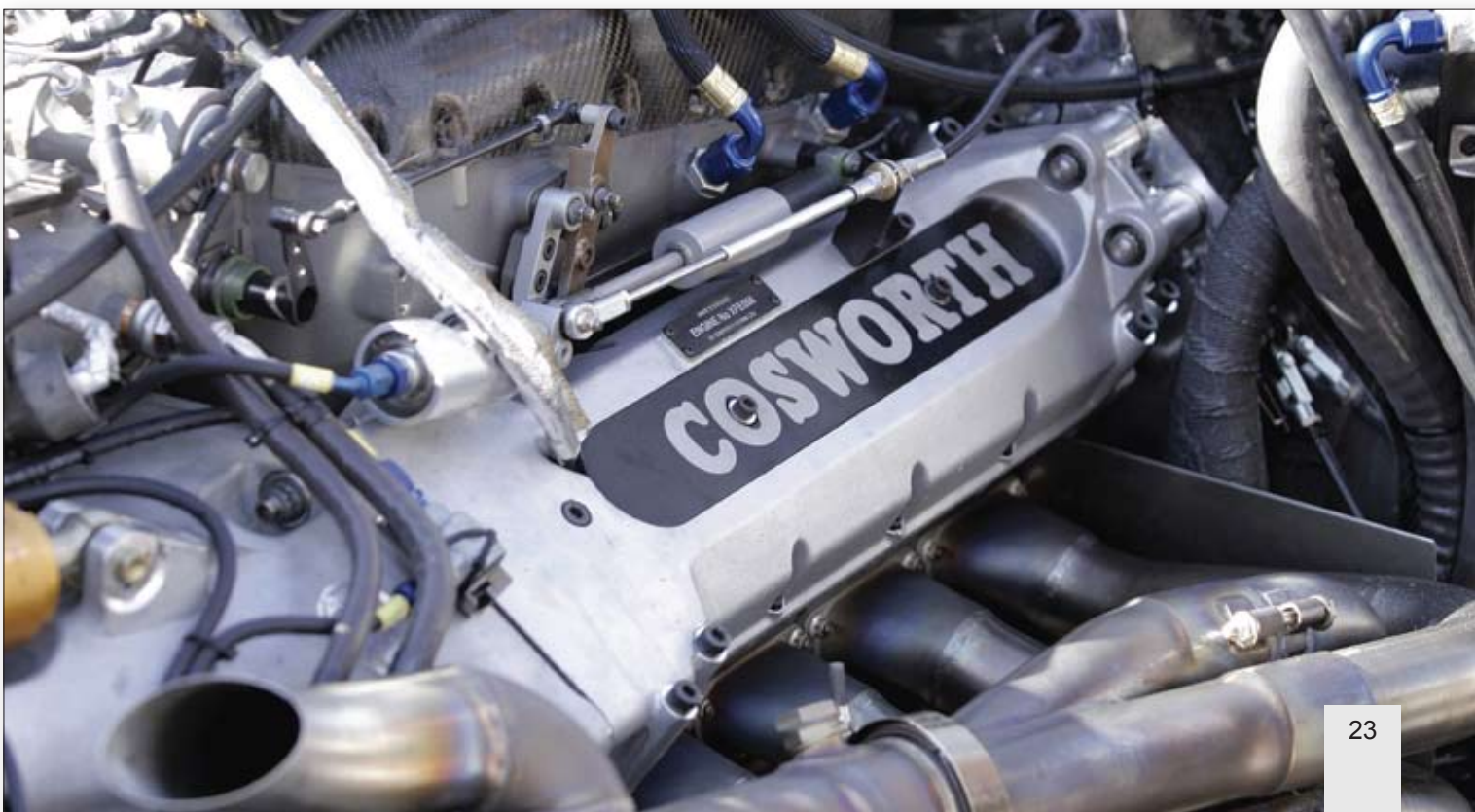
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