



# ETG MOTORSPORT MANUFACTURING SECTOR



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## ETG ARE YOUR MOTORSPORT SUPPLY CHAIN PARTNER

*The motorsport industry is, without doubt, one of the most appealing, crowd-pleasing and marvellous sides of modern manufacturing –*

A prelude to the OEM automotive industry that receives much of its R&D innovations from the high-tech F1 sector.

In an industry worth billions of pounds, the Formula 1 industry is at the very pinnacle of global motorsport. Every nation has industry sectors where it can consider itself the global leader; a geographical area with a niche. For the UK, motorsport is that sector. As the epitome of precision engineering, F1 employs tens of thousands of people and generates a multi-billion pound turnover for the UK economy with almost every team located in 'motorsport valley' that sprawls across Oxfordshire and Northamptonshire. Coincidentally, bordering both of these counties is Warwickshire – the home of the Engineering Technology Group (ETG).

Whilst it is claimed that F1 has its roots in the European Grand Prix of the 1920s and 1930s, there is a clear reason why almost every F1 team is based in the UK. It was in the aftermath of World War II that the UK's fighter pilots, mechanics and aircraft engineers found themselves with an abundance of spare time, abandoned airfields – and a unique skill set. The science of making a fighter plane light, fast, agile and aerodynamic was soon transferred to the development of the modern racing car – hence why the majority of F1 teams are UK based. The modern F1 and general motorsport industry have evolved beyond recognition, but the skills remain the epitome of modern manufacturing. Nowadays, sports teams and their supply chains must react at breakneck speeds, delivering complex lightweight components and assemblies to the race track at the drop of a hat. This is why technology from ETG is a fundamental need for much of the motorsport supply chain.





## QUASER

Quaser has a complete range of 3 to 5-axis vertical machining centres, pallet-loaded machining centres, horizontal machining centres and automation cells that can deliver the productivity demanded by the motorsport industry. The motorsport supply chain demands prototypes, one-offs and small volume runs of extremely complex components that are produced from aerospace-grade alloys such as titanium. To achieve this, subcontractors need a range of powerful, precise, robust and highly productive machine tools – this is exactly what ETG provides with the Quaser brand.

As each of the machining technologies incorporates a multitude of options to deliver absolute flexibility for the end-user, Quaser machine tools can be found everywhere in the motorsport supply chain – especially in the F1 community. With the flexibility to adapt to any machine shop and product requirement as well as providing extremely adaptable and productive solutions, the Quaser brand of machine tools is one of ETG's bestselling product lines – especially in the F1 industry. Just ask our team about some of the machines installed at F1 OEMs and the subcontract supply chain throughout the industry for manufacturing everything from wheels and chassis components to powertrain and aerodynamic parts.



## MITSUBISHI EDM

With several F1 teams already using Mitsubishi EDM technology from ETG, it is evident the brand has been the 'go-to' name in the F1 industry for more than a generation. From the racing teams and through the supply chain, the value of Mitsubishi EDM technology can be applied to cutting and profiling complex geometries and forms through to finishing 3D printed parts. With a comprehensive range of high-end Mitsubishi Electric Die-sinking EDMs, Wire-cut EDMs and fine-hole EDMs – ETG is supporting motorsport manufacturers in their quest to enhance productivity with high levels of speed and accuracy.



## VULCAN

The range of Vulcan machine tools from ETG is named after both the Aston Martin Lagonda Vulcan hypercar that boasts a 7-litre V12 power unit and the RAF Vulcan Bomber. With this pedigree, does a range of machine tools need any further endorsement as to its viability in the motorsport industry.

The Vulcan range of machining centres offers exceptional quality at an affordable price with reliability, performance and build quality that you would expect from the industry's leading machine tool provider. Since their market introduction, Vulcan machines have become a popular choice in the motorsport supply chain sector.

### Pit Equipment



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Jacks



**Balance Systems**

Transmission

**KAPP NILES**

Gearbox Casings & Gears

Engine components

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Go for performance

Aerostructures

**chiron**

Wheels

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Chassis parts

**Nakamura-Tome**

Wheel nuts

Brakes and suspensions

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we cut faster  
MITSUBISHI ELECTRIC  
Changes for the Better

**Engineering Technology Group**

# MOTORSPORT PRODUCTION



## CHIRON

Fast turnaround, high precision and maximum process capability are crucial for the motorsport sector. Top companies and innovation leaders in the racing industry have been using high-end CNC machine tools and turnkey solutions from CHIRON for decades. A CNC machining centre from CHIRON is the ideal solution for the high-speed cutting of components made of any material – whether titanium, aluminium, steel, stainless steel, Inconel, plastic or graphite – all the materials used in racing vehicles.

When it comes to the precision high-speed machining of wheels, the 5-axis CHIRON 18 Series is the machine of choice. For flexibility and productivity, the CHIRON FZ18S offers numerous configuration and equipment options and all 18 series models are available with one or two spindles to deliver unprecedented productivity levels. CHIRON machines can also be found producing suspension and undercarriage and structural parts as well as engine parts and aerodynamic elements of a racing car.



## NAKAMURA TOME

As a world leader in the design and manufacture of single-process, multi-tasking mill-turning machines for the motorsport sector, Nakamura has established a firm foothold in the industry. Developing products by utilising the most innovative technologies, the high precision CNC turning centres and machining centres are applied worldwide by motorsport teams, whatever the class or racing. Nakamura turning centres can be found as the perfect solution for producing specialist nuts and bolts, knuckles, studs and drums, steering rack shafts, suspension ball joints, semi-active suspension, shock absorbers, constant-velocity joints, brakes and so much more.



## KAPP NILES

As a globally renowned group of companies with high-quality and economical solutions for finishing gears and profiles, KAPP NILES is the go-to name for high-end gearbox components. KAPP NILES is the industry benchmark brand and a partner for companies in the motorsport, F1 and OEM automotive industries. The perfect interaction between machines, tools and technologies enables extremely precise machining to a thousandth of a millimetre with specialist technology that ensures the most precise and smooth gear changes under the most challenging of conditions.

The KAPP NILES brand incorporates machines for profile grinding, generation grinding, dressing and grinding tools as well as measuring machines and solutions, so when a racing team needs reliability, durability, precision and performance from its gears – the team to turn to is ETG.



## BALANCE SYSTEMS

As the world leader in balancing machines for rotating components and process control systems, technology from Balance Systems achieves the perfect balance for rotating components in high-end fast paced industries like the motorsport sector. The high performance of rotating parts the motorsport arena is critical for optimal performance, and Balance Systems caters for every facet of this fast-paced industry with high-performance balancing machines for electric motors, alternator rotors, brushless rotors, fans, electric fans, brake disks, drums, clutches, turbines, flywheels, shafts, pumps, wheels, pulleys, propellers, couplings, spindles and more.

Balancing Machines are advanced technological solutions that enable users to eliminate vibration in moving components by providing the perfect balance to improve the life and performance of electrical, mechanical and electromechanical systems within a vehicle. Vibration and noise are typically caused by the unbalance present in the rotating parts and in the top echelons of motorsport it can impact results on the track. To eradicate this phenomenon, each rotating element must be balanced dynamically through a balancing machine during the productive process phase.



## OPS INGERSOLL

OPS Ingersoll is a brand that stands in a class of its own when it comes to high-speed machining centres and EDM technology. If you want machine tools that are as fast-paced and high-performance as an F1 car, the technology and performance of the OPS Ingersoll range are at the front of the grid. For manufacturers in the niche area of designing and producing engines, chassis and aero-structure components for the motorsport sector where quality, precision and speed are needed beyond the realms of the typical machine shop – OPS Ingersoll is the 'go-to' brand.

In its high-speed machining range, OPS Ingersoll offers both the Eagle V5 and V9 high-speed milling machines, used to machine intricate and highly precise parts for engines and high-performance lightweight chassis. What separates the OPS Ingersoll machines from its rivals right from the very outset is the polymer concrete base that guarantees dimensional precision, dynamic rigidity, vibration damping and thermal growth stability. Built upon this foundation is a raft of technology that will not be found on other machine tools.

This ranges from the precision spindle compensation and cooling system, dynamic collision control, load adaptive controls, 3D tuning cycles, energy conservation technology and far too many more features to mention.

With 3 and 5-axis variants available with high-frequency spindles up to 42,000rpm, 15m/s<sup>2</sup> acceleration and ultra-fast tool changeovers, the Eagle V5 and V9 are perfect for attaining precision, quality and surface finishes that will see an end to secondary finishing operations.



# Making Engineers Champions...

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