



# OE QUALITY MARKET LEADING TIMING CHAIN KITS



**400+ REFERENCES COVERING 17,000+ VEHICLES FROM 1969-2021**

VW, SEAT, SKODA, AUDI, FIAT, ALFA ROMEO, LANCIA, RENAULT, VAUXHALL, OPEL, CHEVROLET, SAAB, ROVER, MAZDA, TOYOTA, MAN, FORD, MITSUBISHI, DODGE, CHRYSLER, JEEP, DAEWOO, PEUGEOT, CITROËN, VOLVO, MEGA, SUZUKI, FSO, LADA, HYUNDAI, GEO, IVECO, RENAULT TRUCKS, LAND ROVER, DS, JAGUAR, ABARTH, ZASTAVA, LDV, FORD USA, HONDA, KIA, MG, LOTUS, NISSAN, TALBOT, MINI, DACIA, PROTON, MERCEDES-BENZ, INFINITI, SUBARU, CADILLAC, PORSCHE, CUPRA, TATA, SMART, DAIHATSU, BMW, WIESMANN, ALPINA, DS (CAPSA), LTI, MORGAN, WESTFIELD, FORD ASIA & OCEANIA, ACURA, ISUZU, DAIMLER, MITSUBISHI, NISSAN (DFAC), SSANGYONG, LEXUS, TOYOTA (FAW), ASTON MARTIN.



**CHAIN  
SHIELD  
TECHNOLOGY**



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# TIMING CHAINS

Matching OE quality through vigorous testing.

BGA Timing Chains are often manufactured by the OEM. Below are the additional processes carried out before BGA chains are released onto the production line.

- Dimensional checking against original drawings, cross checked to OE.
- In house Hardness testing of the link-pin and plate vs OE benchmark.
- Tensile testing of every BGA reference against the OE sample.
- Exclusively from BGA, the latest technological advancements in Timing Chains. All chains are pre-lubricated with a specially formulated chain lubricant reducing risks of premature wear.

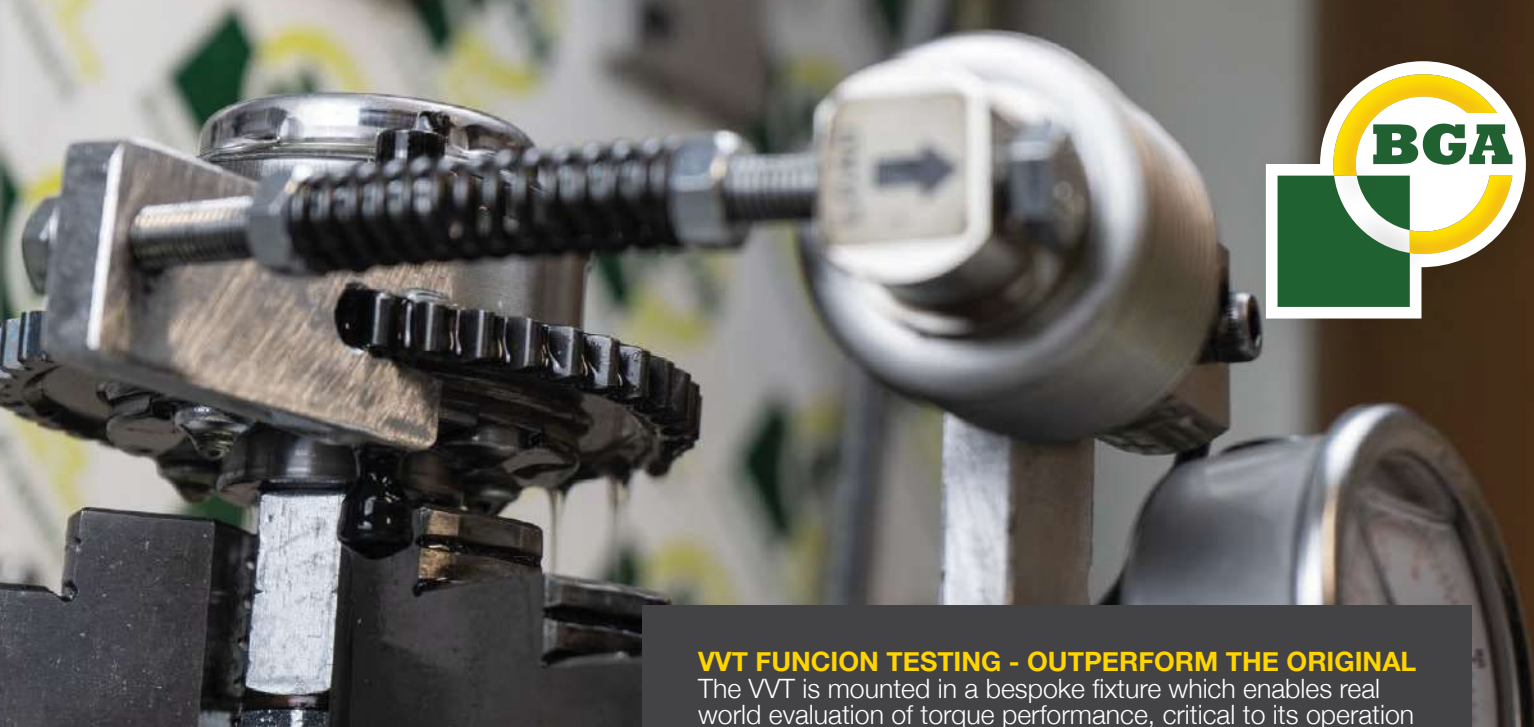


## TENSILE TESTING OF CHAINS

Chains are subjected to control pulling force with a range of different parameters measured, presented as a line graph showing elongation, yield point, maximum operating load and maximum load against the OE alternative, ensuring quality is matched.







#### **VVT FUNCION TESTING - OUTPERFORM THE ORIGINAL**

The VVT is mounted in a bespoke fixture which enables real world evaluation of torque performance, critical to its operation within the engine valve train.

# VVT SPROCKETS

Performance Critical.

The Variable Valve Timing Sprocket (VVT) has been designed to help maximise performance while reducing emissions and improving vehicle efficiency.

BGA's VVT sprockets are tested against the OE sample to ensure quality is met or surpassed. This guarantees less oil loss and no friction between the sprocket and rotor.

- Leak/ Pressure test
- Endurance / Life Cycle
- Surface Finish
- Hardness test to ensure OE material specification is met.



# TENSIONER

Engineered to outperform.

A chain tensioner generally is operated by a spring-loaded mechanism and/or oil pressure. The tensioner is constantly working to ensure the optimum performance of the timing chain system.

It is critical that every single component within the tensioners are working correctly and within their given parameters, a failure in the smallest of components could lead to severe engine damage.

All BGA tensioners are subject to the following in-house testing, to meet or exceed the OE sample specifications:

- Dimensional
- Functional
- Hardness
- Surface Roughness



## TENSIONER SPRING RATE TEST

This test evaluates the core element of the tensioner [the spring] as the spring is responsible for more than 90%+ of the applied tension to the chain. Performance specification is critical.







#### GUIDE SIZING

CMM Machines are utilised to evaluate Guide sizing against OE, guaranteeing an original specification alignment and fitment.

# GUIDES

## OEM Heritage

BGA boasts 90+ years of OE manufacturing heritage as the Aftermarket division of 4BG Group. 4BG Group are largest privately owned manufacturer of plastics, mouldings and parts for global blue chip companies.

To ensure BGA's guides outperform in the Aftermarket, the following elements are critical to passing quality control:

- Polymer hardness is a critical factor, too hard and the guide is brittle, too soft and the guide will flex, reducing the control and damper element.
- BGA utilises the Spectral analysis equipment from the OE division of the British Gaskets Group, to ensure our guides are manufactured to OE specifications.





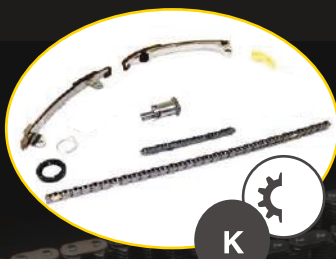
# THE MOST COMPLETE KITS.

What's in the box?

Mechanics now understand the importance of replacing all components when replacing a Timing Chain. With the customer always at mind, BGA ensures all components are included in kits.

## TC0177VFK example:

#	OE Numbers	Description
1	03C109158A	Timing chain
2	03C109509P	Tensioner guide
3	03C109469K	Guide
4	03C109571F	Camshaft Sprocket
5	03C105209AQ	Crankshaft sprocket
6	03C105209AG	Crankshaft sprocket
7	03C109507AH	Tensioner
8	038103085E	Oil seal
9	03C109088E	VVT SPROCKET
10	N91197001	VVT bolt
11	03E109511	Guide bolts
12	N91097201	Tensioner bolts
13	03C103825A	Sleeve
14	N90256202	Cam sprocket bolt
15	03C109287F/G/H	Timing cover gasket
16	N91048601	Crank bolt
17	03C109293A	Cover seal



K

### KIT

The [K] KIT contains:  
Chain, Tensioner and Guides.



FK

### FULL KIT

The [FK] FULL KIT contains:  
Kit Contents + Sprockets, Timing Cover Gasket, Oil Seal, Feed pipe and bolts where applicable.



VFK

### FULL KIT + VVT

The [VFK] FULL KIT with VVT SPROCKETS contains: Full Kit Contents + VVT Sprockets.





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