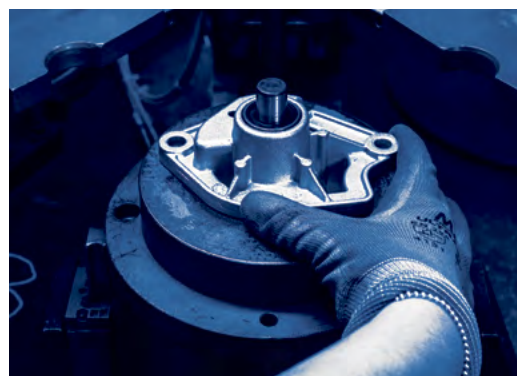


TIMING BELT KIT WITH WATER PUMP



metelligroup
AUTOMOTIVE PASSION



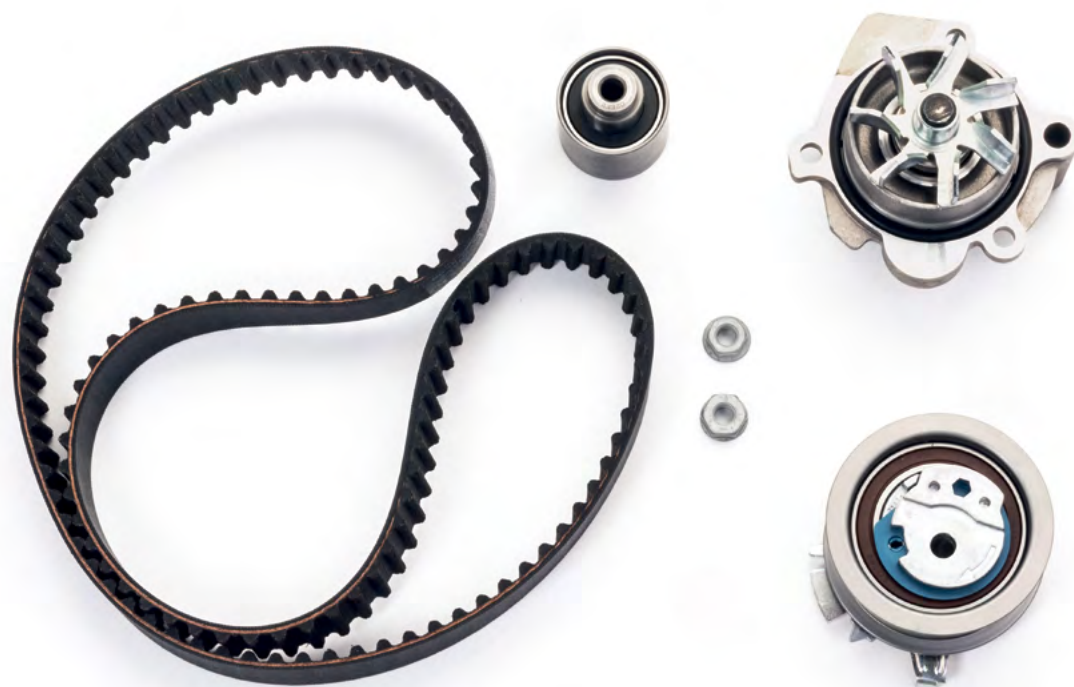
WELCOME TO THE CORE OF AUTOMOTIVE PASSION

Metelli Group is the proud manufacturer of over 13,000 automotive components. Robust and reliable components that are probably a part of the car you drive. What's so special about them? A consistently high quality that we back with a 5-year guarantee – our timing belt kit included. Like many premium brands but few manufacturers, this is made possible by extensive know-how.

Every single component is designed to reach – or exceed – the performance of the original OEM part that it is designed to replace. How we manage this? We carry out metallurgical analyses, often identifying better materials or compounds, and then reengineer them in 3D CAD systems – where our Research & Development team is often able to make improvements.

Once the part is manufactured in state-of-the-art production lines and robotically assembled, it is ready to replace the original part. Equally real, often better than its predecessor.

THE TIMING BELT KIT WITH WATER PUMP. PROBLEM SOLVED



JUST ONE CODE

We have gathered a wide range of references for 1,900 vehicle models comprising 4 main components. These can be ordered with a single product code. Each kit includes the water pump, tensioner, belt, idler pulleys and accessories. Covering more than 95% of Europe's total vehicle fleet, it is now easier than ever to identify and order the necessary spare parts. Our kit solution is easy to understand and order – with just one code.

TWICE AS GOOD

Firstly, our kits reduce labour and logistic costs – putting everything required for the best possible repair into one box. Secondly, replacing all the parts of the unit leads to a longer lifetime, as it ensures a uniform wear level across all of the components.

ITALIAN KNOW-HOW

With more than 50 years of manufacturing experience in Italy, the Metelli Group has all the know-how needed to ensure the reliability and durability of each and every part. You can be sure that every part in the box has the same level of quality and performance as the original – or even better.

OUR FORMULA

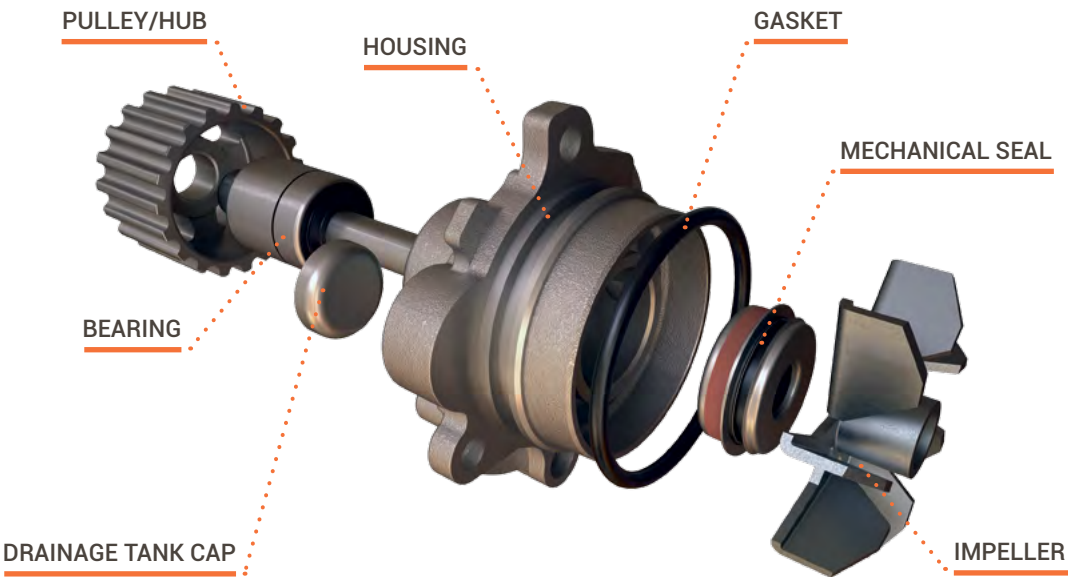
Each part is analysed thoroughly and tested with computer simulations, according to the same quality and safety criteria of the OEM manufacturer. Above and beyond this, we put our components through real-life stress tests – in the factory and on the road. This puts us ahead of our competitors, and enables us to back up every part of the kit with a five-year guarantee.



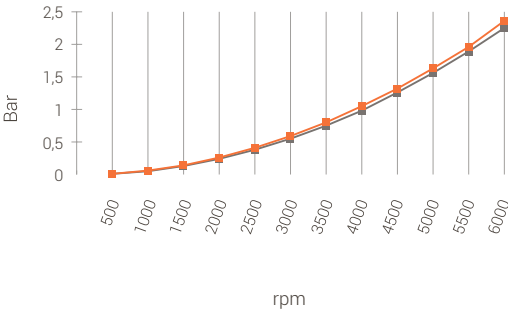
THE WATER PUMP. AT THE HEART OF EVERY ENGINE

The engine cooling system is designed to stabilize operating temperature, limiting its increase within precise limits. The water pump circulates the coolant and ensures its correct flow at any given engine rpm. Maximum accuracy is a prerequisite.

Each component of the water pump is studied, designed and manufactured according to strict specifications. The pump housing geometry is based on technical considerations such as housing stress, but also the morphology of the entire cooling circuit. This means that we have the specific vehicle in mind when we're developing the pump.

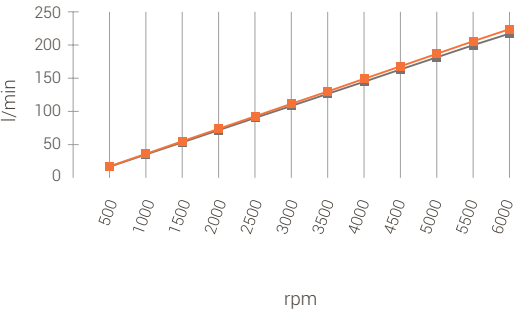


PRESSURE TEST



—■— Metelli Group water pump pressure rate
—■— Premium Competitor water pump pressure point

FLOW RATE TEST



—■— Metelli Group water pump flow rate
—■— Premium Competitor water pump flow rate

Every Metelli Group water pump is tested during its assembly with a careful check of the pressfit load dimensions value. This is followed by specific tests for impellers and bearings on the test benches, assembled pump tightness test and pulley and impeller materials hardness test. Test results show that our water pump performance exceeds that of the main premium competitors, both in terms of durability and temperature management.

In almost every case the pump housing is made of aluminium or cast iron. The bearings are of the ball-ball or roll-bar type, depending on the final use. The impellers are made of metal sheet or stainless steel, brass, cast iron or with the most advanced technopolymers. The mechanical seals, too, are produced with advanced materials. The pulleys are sintered, made of metal sheet or cast iron, and designed to withstand high belt tension. The seals are O-rings, flat or shaped, made of ECS, Betaflex or HNBR.

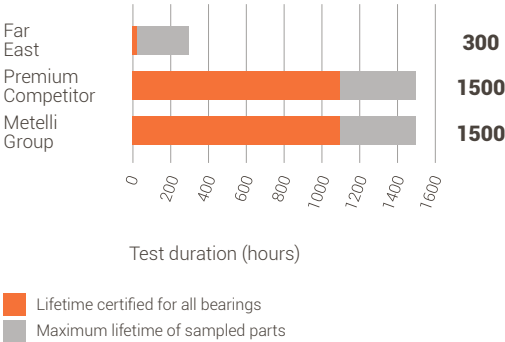
Through our specialised work in this field we have developed and patented new water pumps. And we have a range of nearly 1000 items available for Passenger cars, LCVs and Trucks.

TENSIONERS & IDLER PULLEYS. PUT TO THE TEST. 250 TIMES

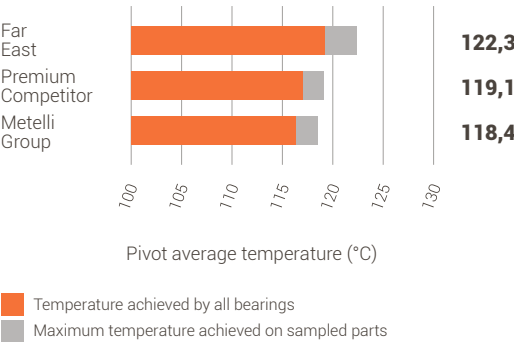
A perfect component is only made possible by continuous research and development. For over 45 years we have developed idler pulleys through constant and thorough analysis and with hundreds of design and testing hours to refine every detail. There is no shortcut to high performance. The superior quality of a tensioner is determined by the quantity and type of tests to which its components are subjected. For automatic tensioners, this includes the bearings, bushings and springs.

For both tensioners and idler pulleys, all bearings are tested and approved only if they have passed 500 stressing hours of operation, equivalent to about 125,000 km of travel at higher than realistic temperatures. They are then analysed to estimate the duration of their lifetime, which can reach as much as 1500 hours.

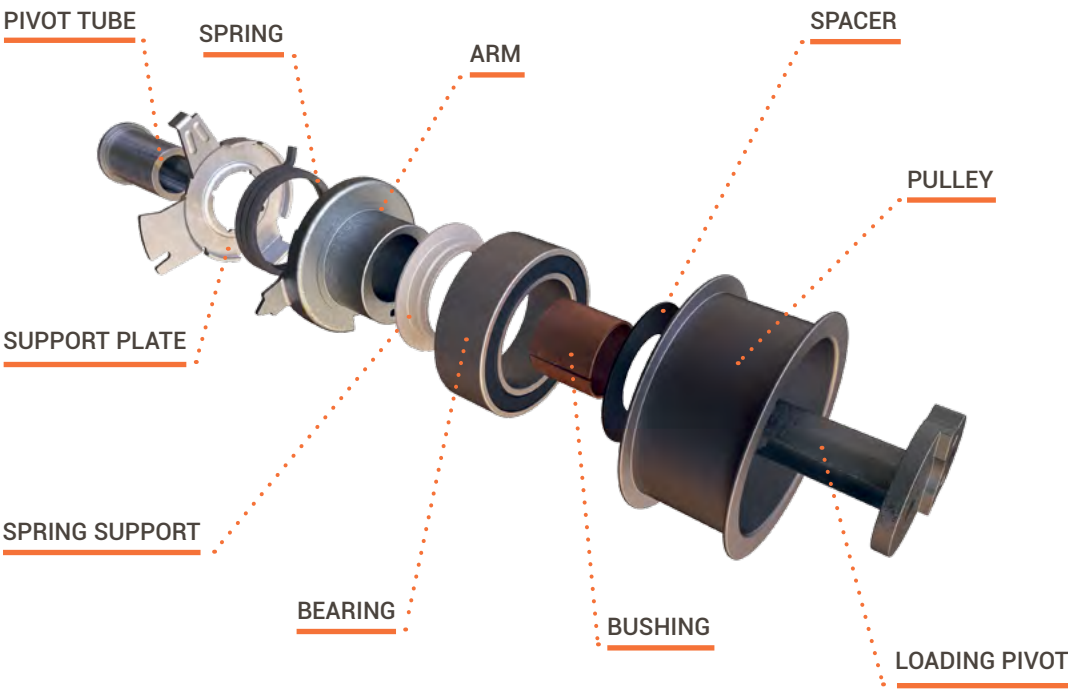
DURABILITY TEST (Minimum limit 500 hours)



TEMPERATURE TEST* (Maximum limit 150°C)



*A non-constant or too high temperature indicates a malfunction



Explosion of an automatic tensioner

Our automatic tensioners are based on high quality self-lubricating bushings. This is determined by the materials used, which in their correct layering allow the correct movement – preventing them from gripping or from causing early wear of the system. Even our springs undergo quality control, as we measure and test them to ensure the correct torque-angle coupling.

The in-depth study of assembly geometries, extensive experience and intensive tests makes it possible to manufacture both traditional and automatic tensioners. Some of these are designed without a key for easier and faster installation.

The quality and performance of our tensioners is scientifically ensured by more than 250 tests.

BELTS YOU CAN TRUST

Timing belts are simple but fundamental components – they transmit a fully synchronous movement between camshaft, injection pump, water pump and other engine units.

Belts are constantly under stress during their life cycle. To ensure a longer life, their essential parts are reinforced with teeth (where a polyamide fabric protects against wear), an elastomer body, a glass-fibre core and a fabric resistant to high temperatures.

For this reason, only OEM belts from selected premium manufacturers are fitted in our timing belt kit with water pump – to ensure maximum performance and reliability.



GUESS HOW MANY YEARS OUR KITS ARE GUARANTEED



Our new 5-year guarantee is a reflection of the confidence we have in our timing belt kits with water pumps, branded Metelli, GRAF and KWP. This confidence is gained over time – we have been manufacturing high quality spare parts for over 50 years, so there's not much we don't know about their reliability and durability. That's why we now offer the best guarantee on the market, so that you too, can feel total confidence in our kits.

An information leaflet with all the indications to validate the guarantee is placed in every package, including a sticker to be filled in and attached to the vehicle maintenance log.

To complete the process, the mechanic installing the timing belt kit must record his data and the customer's vehicle data on the www.metelligroup.it/5Guarantee website.

From then on, the guarantee will be in force and the mechanic will receive a validation certificate.

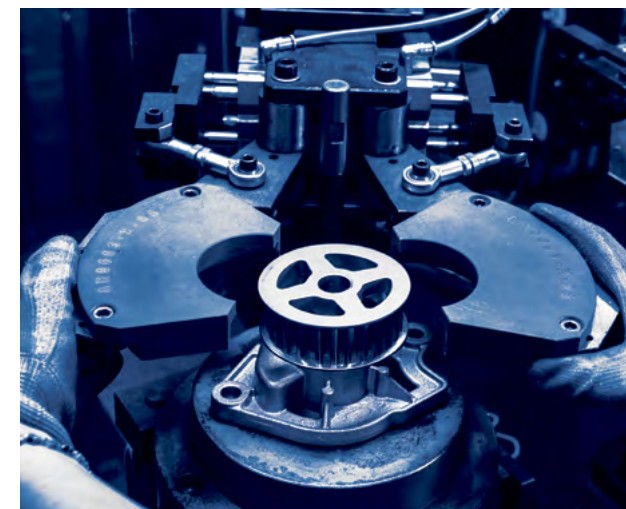


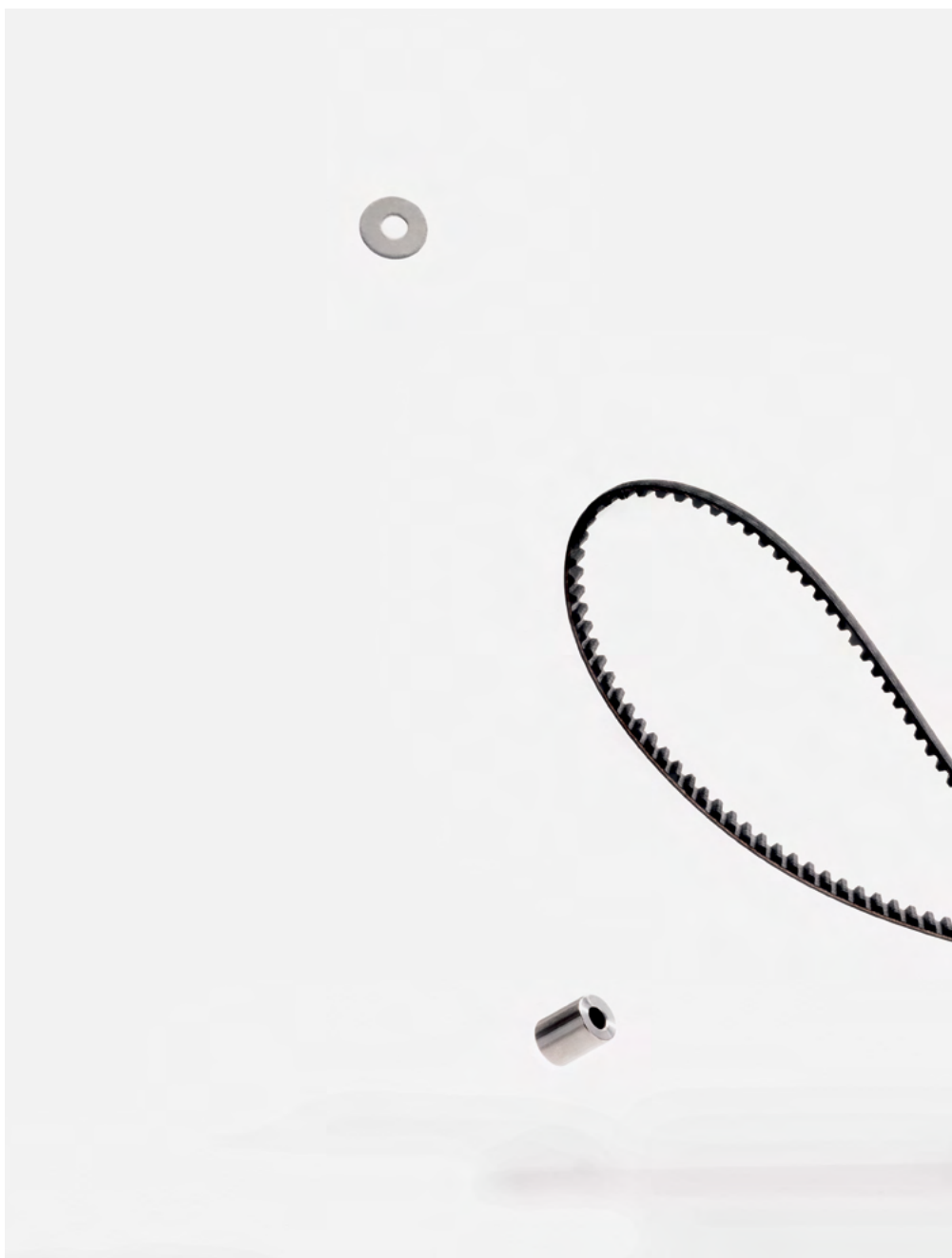
METELLI, GRAF & KWP: ALL POWERED BY THE SAME PASSION

The Metelli Group timing belt kit with water pump is sold under the Metelli, GRAF and KWP product brands. With long standing track records for quality parts and know-how, all three names are now recognized as quality brands in numerous markets.

Each logo signifies a long and impressive story based on knowledge, manufacturing processes and high quality parts – resulting in a wide range of water pump kits that almost completely covers the European vehicle fleet.

Backed by the entire Metelli Group, the complete range from each of these product brands comes with the same level of support, guarantees and logistical networks. All to give you the utmost reliability.





www.metelligroup.it

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