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NEW DAMPER



A NEW TECHNOLOGY THAT RADICALLY CHANGES THE CONCEPT OF THE CRANKSHAFT PULLEY.

- The differences between the traditional crankshaft pulleys (Damper) and the new concept pulleys (New Damper) are many and are highly technical. These differences have led some of the major car manufacturers to adopt the new product for the aftermarket.

TRADITIONAL DAMPER PULLEY

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Generally speaking, traditional damper pulleys (Fig. 1) are formed around a core of steel which is rigidly coupled to the crankshaft, a rubber ring that separates the core from the outer body and an outer body with grooves where the belts are seated.

NEW DAMPER PULLEY

2



The 'New Dampers' instead consist of a single block of alloy steel with rubber inserts (Fig. 2).

TRADITIONAL DAMPER PULLEYS

Traditional pulleys have a complex structure designed to drive the auxiliary belt but particularly to limit vibration and noise.

THE FACT THAT THEY ARE SO COMPLEX MEANS THEY HAVE A GREATER NUMBER OF POSSIBLE FAILURE POINTS.

EXAMPLE - BMW CRANKSHAFT PULLEY

Ref. Orig. 11237793593 (figs. 3, 4, 5)

FINAL RESULT: breakage and complete failure of the rubber ring. Separation of metal parts. Unseating of the belt. Displacement and overlapping of the metal parts.



● VIBRATIONS:

these can occur in the auxiliary drive components due to levels of lateral slip in the pulley's rubber due to differences in ignition timing.

● TIME EFFECT:

the physical characteristics of the rubber compound are affected by time. The ageing process of the rubber causes a hardening of the compound producing transverse cracks and increasing the risk of crumbling.

● RESONANCE EFFECT:

the resonance in diesel engines has increased considerably (HDi, DTi, TDi), especially in large displacement engines (trucks, SUV, etc.). This effect can result in the damage or failure of the pulley due to the excessive forces from the torsional vibration of the engine.

● TEMPERATURE EFFECT:

the operating temperature of the engine and its variations can cause the injected rubber to crack and detach from its metal parts. The detached parts of the rubber can interfere with the auxiliary belt and compromise other parts of the drive system.

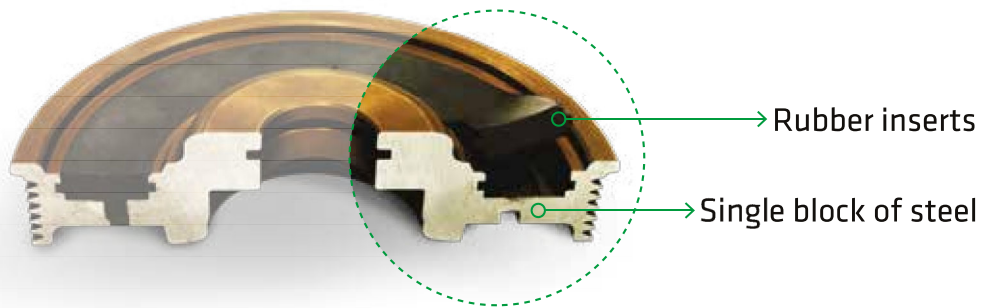
● KINETIC EFFECT:

the inertial engine pulses cause a loss of elasticity in the rubber components that join the metal parts of the pulley. This effect, as a function of the intensity of the kinetic force and time, can result in premature failure of the pulley releasing the torsional vibration of the crankshaft.

NEW DAMPER PULLEY

● THE NEW TECHNOLOGY USED IN THE PRODUCTION OF "NEW DAMPER" PULLEYS ALLOWS US TO MAKE PULLEYS THAT DO NOT BREAK AND THAT PREVENT VIBRATION PROBLEMS.

● THE "NEW DAMPER" PULLEYS ARE DESIGNED ACCORDING TO THE SPECIFICATIONS OF MANUFACTURERS (EX. VAG GROUP AND MERCEDES) THAT USE MONOBLOCK PULLEYS WITH ELASTIC INSERTS TO DECREASE VIBRATIONS AND TO HARMONIZE RESONANCE.



Furthermore, these pulleys deliver superior transmissible power characteristics. The mounting with controlled torque to the crankshaft, the symmetry of its exterior profile that transmits rotation to the Poly-V belt, the compactness of its steel construction that doesn't scatter detached parts, are the basic reliability elements of the "New Damper" pulleys guaranteed for 150,000 km of service life.

PRODUCTION The foundry used was developed to obtain a steel alloy whose structure provides the adequate density and flexibility, allowing for a flexible and porous material, essential for the application of the project. The mechanization process is fully robotic, conferring a high degree of production capacity while, for the rubber injection process (580-890bar), a thermo EPDM rubber polymer is used, the same used by major manufacturers. The rubber is very durable, with operating temperatures that can reach 210° C.

BALANCING Thanks to the support of the engineering department of some major car manufacturers, an effective balancing process has been developed; with the help of a robotic digital machine, each piece can be automatically calibrated to a dynamic equilibrium of 0,1gr/cm. This inspection also detects vibrations caused by potential imbalances and corrects them, if necessary, through an automated process that brings them back within the parameters required by the OEM specifications. The effectiveness of the process allows mechanical problems to be avoided when using the pulleys.

THE KITS We have chosen to also include the alternator in the study of the process as part of the secondary drive system with a high degree of inertia. We have developed a rotational power transmission kit for the auxiliary drive system which includes the relative alternator free-wheel pulley for each application requiring a crankshaft pulley in order to reduce crankshaft torsional irregularities and, at the same time, to guarantee the absence of noise and vibration. The kits come with mounting instructions to assist in installation or which indicate in detail the models for which they apply.



**NEW DAMPER PULLEY KIT
+ ALTERNATOR PULLEY + INSTRUCTIONS**

All the products in our range help populate the TecDoc database from which the most common part numbers and all aftermarket supply chain e-commerce searches are derived.

