

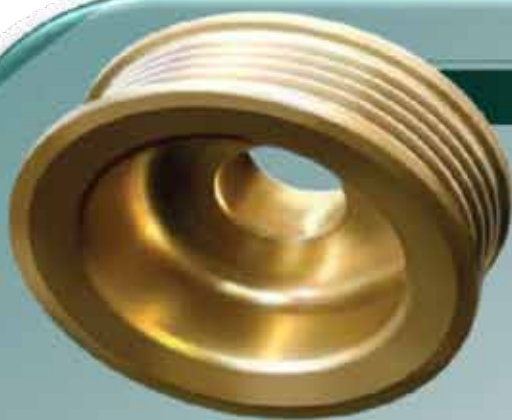
Technical Information

Overrunning Alternator Pulleys (OAP's) from INA and Isolator Decoupler Pulleys (IDP's) from LITENS

OAP's and IDP's perform like a 'suspension system' for the accessory belt drive, by synchronizing the belt drive system which improves its performance and extend the life of many components.

These new generations of Pulleys achieve their performance by using two different technologies.

The **OAP** (INA) has a one-way clutch inside the Pulley which allows the rotor of the alternator to coast to a stop when the engine is shut down. The Alternator effectively disconnects from the belt and coast freely if the belt speed slows suddenly.

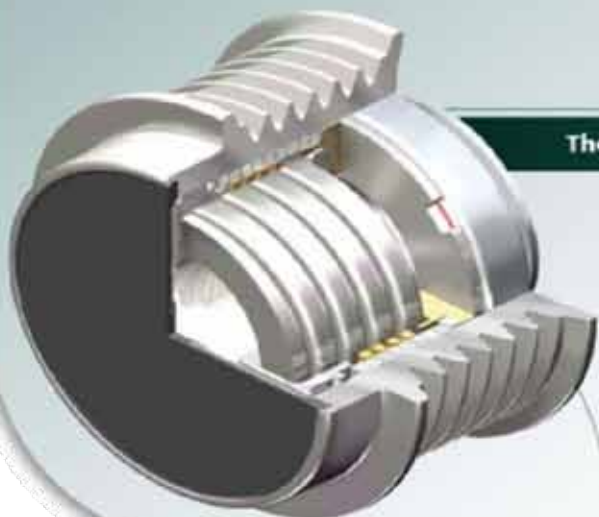


The Solid Alternator Pulley

used to be the industry standard and has been around for many years. It has evolved from the V type to the V-ribbed type (serpentine belt). Its only purpose is to drive the alternator via the belt. If your alternator has a solid pulley, only replace if damaged, rusted, or worn.

The Overrunning Alternator Pulley (One-Way Clutch)

has a simple one-way clutch inside the pulley. This internal clutch allows the rotor of the alternator to coast to a stop when the engine is shut down. This 'overrunning' feature eliminates 'chirp' sounds that occur when the engine decelerates quickly, causing the belt to slip (engine shut down or transmission shifting).



The Isolator Decoupler Pulley (IDP)

not only has a one-way clutch inside, it also incorporates a torsion spring to absorb energy. The effects of the internal clutch are the same as mentioned above; however, the patented internal torsion spring design is the key to the much higher level of function associated with the IDP.

The internal spring is tuned (engine specific) to absorb base engine vibrations (cylinder firing pulses) before they reach the alternator rotor and negatively affect the accessory drive. With the IDP installed you will see much less tensioner friction, reduced noise, vibration, and harshness and an all around more robust accessory drive.

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The **IDP (LITENS)** not only has such a one-way clutch inside, but also a torsion spring to absorb energy, for example engine vibrations. In this way it has two major functions: Overrun and Isolation

Overrun:

Similar to a one way clutch, the Litens IDP allows the alternator to gently coast to a stop when the vehicles engine is shut off. This eliminates shut down chirp noises that are created when the mass of the alternator rotor tries to over spin on shutdown (inertia). These noises are more prevalent, but not limited to, vehicles with larger alternators and diesel engines.

This overrunning feature also occurs during transmission shifting. It allows the rotor of the alternator to actually spin faster (or play catch up to the engine deceleration rate) during engine deceleration (ie. A hard 1-2 transmission shift). These chirp noises are also eliminated by the overrun function.

Isolation :

The Litens IDP has a patented torsion spring inside. This is the secret to the higher level of function that the Litens IDP is world famous for. This spring connects the alternator pulley to the rotor. Think of it as a “suspension system” for the alternator. This “suspension system” is needed because of something called Torsional Vibration (TV). TV, acting on the alternator inertia, can seriously affect the belt drive system durability as well as the NVH felt by the driver.



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Conclusion:

These favourable technologies (OAP and IDP) save and protect all aggregates which are connected with the accessory belt drive, especially the Alternator.

Major benefits:

- absorbed belt speed fluctuations
- reduced slip noises
- reduced vibrations
- lower wastage of components
- extended life of the belt, the tensioner, and the Alternator

Population:

OAP's and IDP's are increasingly used by the O.E. of car manufacturers worldwide. (90% of all European Diesel-Vehicles are equipped with OAP's or IDP's and the leading car manufacturers are using such parts only for all their applications).

LITENS O.E.- Applications:

(Bosch, Denso, Visteon, Valeo, Melco, Marelli)

Ford	Transit, Fiesta, Focus, Galaxy, Mondeo, S-Max
Opel	Astra, Corsa, Signum, Vectra, Zafira, Family
Toyota	Corolla, Matrix, Camry, Highlander, RAV4, Verso
Audi	A4, A5, Q5
Volvo	XC70, XC90, V70, S80
Chrysler	Minivan, Voyager, Pacifica, Sebring, Caliber
Jeep	Patriot, Compass
Peugeot	407, 607
Citroen	C6, C5
Alfa Romeo	159, Brera, Spider
Jaguar	S-Type

also applications for: **Lexus - Saab - Fiat - Dodge - GM - John Deere - Land Rover**

ATTENTION!

Therefore all other components and parts are designed and provided for a use with **original** OAP's and IDP's only. By using **replacement products** instead the **risk** of an accelerated wastage raises extremely. Quality Claims regarding the accessory belt drive system will be rejected by the OEM's if not the original IDP or OAP is used on the alternator.

