

R&D Request

Company Profile - Description of the company

Company:

RIST

Country:

South Korea

www-Address:

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Contact person:

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Position in the company:

Senior Researcher

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Year established: 1987

Turnover in million Euro

- Up to 2 million
- 2 to 10 million
- 10 to 50 million
- More than 50 Million

Number of employees in the enterprise:

- 1 – 9
- 10 – 49
- 50 – 249
- More than 250

R&D Request

Technology Field	Automobile parts	
Title of research	Semi-Permanent Timing belt with Corner Groove for Automobile	
Feature & Benefit	Feature	<ul style="list-style-type: none"> - Effective structure for stress relief of rubber timing belts - In particular, stress relief at corner portion of dedendum of timing belt teeth - Service life (Fatigue life) is more than 2~3 times of conventional timing belt
	Benefit	<ul style="list-style-type: none"> - No need to maintenance within the service life of automobile engine - Weight reduction : 1.4 kg (in comparison with timing chain) - Reduction of fuel consumption (75% of fuel consumption with timing chain) - Low cost, Noise and Dynamic loads reduction etc.
Current Stage of Development	<input type="checkbox"/> R&D Proposal	
	US Patent was published. (US 7789781 B2) Design Optimization was carried out.	
Description	<p>[Technical Field]</p> <p>The present invention relates to a timing belt and a coupling structure of the same, and in particular to a timing belt and a coupling structure of the same in which an optimized groove is formed at a corner portion contacting with a thread portion and a belt body, so that a stress applied to the corner portion is decreased, and a durability of a timing belt is enhanced.</p> <p>In addition, a through hole is formed at a threaded surface or a sprocket for thereby minimizing noises and vibrations.</p> <p>[Technical Background]</p> <p>Generally, a timing gear represents a gear or pulley which is attached to a front end of a crank shaft and a cam shaft installed in an engine part of a vehicle, so that a valve opening and closing timing is synchronized with a rotation of a crank shaft. There is provided a chain type in which a chain is used so as to connect a gear of a crank shaft and a gear of a cam shaft. In a belt type, a timing belt is used. In a gear type, a spur gear is used with its accurate transmission of a driving force. In the case that a distance between the shafts is large, the chain type and the belt type have been generally used. The use of a low cost belt type</p>	

	<p>increases as compared to an expensive chain type.</p> <p>A V-shaped rib engaging with the gear is formed at a surface of the timing belt. The belt is made of a certain fiber, which is not flexible, such as a rubber, a glass fiber, etc. With its light and low noise characteristic and no need of lubricant, the belt has been used for a reciprocation type engine.</p> <p>[Content of Technical Invention]</p> <p>Object of the invention is to decrease a stress focused at a corner portion forming an optimum shaped groove at a corner portion of a timing belt, so that it is possible to largely increase a fatigue life span of a timing belt and a durability of a timing belt. In addition, noises and vibrations can be minimized by forming a through hole at a threaded surface of a timing belt or a threaded portion of a sprocket. In the timing belt, which has threads at a belt body, there is provided an improved timing belt comprising a groove formed at a corner portion in which the threads and the belt body contact with each other.</p> <p>A reinforced layer is coated on a surface of the timing belt, and said reinforced layer is coated along the groove.</p> <p>A through groove is formed on a surface of the belt thread in a width direction, with the surface of the same contacting with the sprocket.</p>
IPR Status	<p><input checked="" type="checkbox"/> Patent granted</p> <p>Application Number : US 7789781 B2</p>
R&D experience	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
Available Language	<p>English</p>
Nationality	<p>South Korea</p>
Type and role of partner	<p>- Type: company</p> <p>- Role: cooperation development, prototype manufacturing, business partner</p>
Expected Period	<p>2-years</p>