

Tips & Technology

For Bosch business partners

Current topics for successful workshops No. 86/2014

Electrics / Electronics



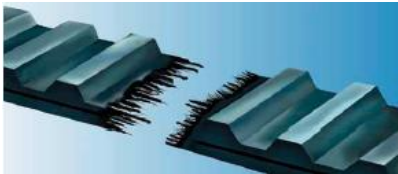
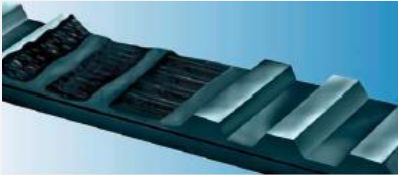
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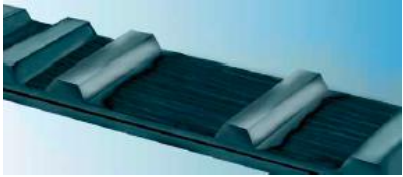
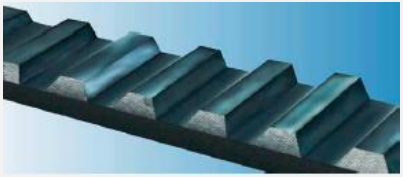
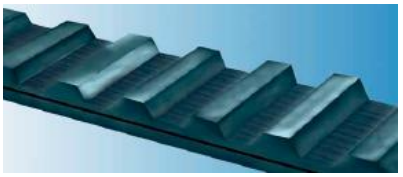
Invented for life

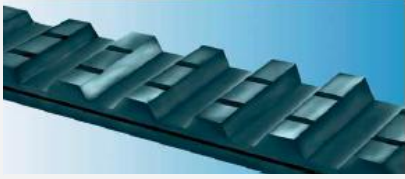
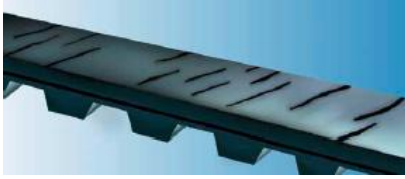

Belt damage: Causes and solutions

Drive belts are wear parts and subjected to high loads in a vehicle. In the following , we will show you the causes of belt damage and what options you have in terms of solutions.




Damage to toothed belts: Causes and solutions

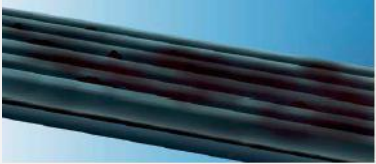
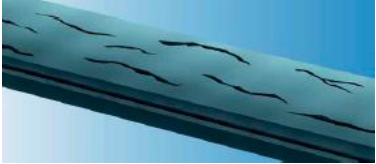

Damage pattern	Cause	Solution
<p>Cracks in the toothed belt</p> 	<ul style="list-style-type: none">- Effect of foreign object- Tension too high- Toothed belt kinked before/during installation	<ul style="list-style-type: none">- Remove foreign object, check cover and install it correctly- Ensure proper installation and adjust tension correctly- Ensure that belt is handled properly <p>⇒ Change belt</p>
<p>Tooth shear and tooth flank wear</p> 	<ul style="list-style-type: none">- Tension too high/low- Effect of foreign object- Seized belt pulley, tensioner or idler pulley- Worn belt pulley	<ul style="list-style-type: none">- Ensure proper installation and adjust tension correctly- Remove foreign object, check cover and install it correctly- Inspect pulleys and bearings and replace as necessary- Inspect belt pulley and replace as necessary <p>⇒ Change belt</p>


Damage pattern	Cause	Solution
<p>Separation of teeth and fabric</p> 	<ul style="list-style-type: none"> - Effect of operating fluids (e.g., oil, anti-freeze, brake fluid) 	<ul style="list-style-type: none"> - Determine cause and correct it (e.g. leak on the engine) <p>⇒ Change belt</p>
<p>Edge wear</p> 	<ul style="list-style-type: none"> - Alignment error: Belt out of alignment or running against rim flange - Drive component or pulley defective - Cover rubbing against tooth belt 	<ul style="list-style-type: none"> - Check axis positions on drive, parallelism of axes and bearing play on rollers and pulleys, align or replace as necessary - Toothed belt pulleys, tensioner and idler pulleys inspect and replace as necessary - Check cover and install it correctly <p>⇒ Change belt</p>
<p>Fabric wear in land area</p> 	<ul style="list-style-type: none"> - Tension too high - Belt pulley defective - Belt generates too much heat 	<ul style="list-style-type: none"> - Ensure proper installation and adjust tension correctly - Inspect belt pulley and replace as necessary - Determine cause and correct it <p>⇒ Change belt</p>

<p>Running marks on teeth</p> 	<ul style="list-style-type: none"> - Belt pulley damage from foreign object or tool - Effect of foreign object - Toothed belt damaged before/during installation 	<ul style="list-style-type: none"> - Inspect belt pulley and replace as necessary, ensure proper installation - Remove foreign object, check cover and install it correctly - Ensure that belt is handled properly <p>⇒ Change belt</p>
<p>Cracks on back of belt</p> 	<ul style="list-style-type: none"> - Temperature too high/low - Tensioner or idler pulley worn or stiff - Belt too old - Effect of foreign media 	<ul style="list-style-type: none"> - Determine cause and correct it - Inspect tensioner and idler pulleys and replace as necessary - Replace belt - Determine cause and correct it (e.g. leak on the engine) <p>⇒ Change belt</p>
<p>Noise generation</p> 	<ul style="list-style-type: none"> - Tension too high: howling/whistling - Tension too low: belt knocks against cover - Alignment error - Pulley bearings defective 	<ul style="list-style-type: none"> - Ensure proper installation and adjust tension correctly - Ensure proper installation and adjust tension correctly - Check axis positions on drive, parallelism of axes and bearing play on rollers and pulleys, align/replace as necessary. - Inspect tensioner and idler pulleys and replace as necessary <p>⇒ Change belt</p>

Damage to V-rib belts: Causes and solutions

Damage pattern	Cause	Solution
<p>Uneven wear</p> 	<ul style="list-style-type: none"> - Alignment error - Severe belt vibration 	<ul style="list-style-type: none"> - Check axis positions on drive, parallelism of axes and bearing play on pulleys, replace as necessary - Ensure proper installation and adjust tension correctly <p>⇒ Change V-rib belt</p>
<p>Cracks and fractures in body</p> 	<ul style="list-style-type: none"> - Tension too high/low - Belt worn - Effect of foreign object - Temperature too high/low 	<ul style="list-style-type: none"> - Ensure proper installation and adjust tension correctly - Replace belt - Remove foreign object, check cover and install it correctly - Determine cause and correct it <p>⇒ Change V-rib belt</p>
<p>Crack in belt after brief period of operation</p> 	<ul style="list-style-type: none"> - Tension too high - Belt kinked before/during installation - Drive components or pulleys stiff or blocked 	<ul style="list-style-type: none"> - Ensure proper installation and adjust tension correctly - Ensure that belt is handled properly - Inspect drive components and pulleys, replace as necessary <p>⇒ Change V-rib belt</p>

Damage pattern	Cause	Solution
<p>Dirt buildup</p> 	<ul style="list-style-type: none"> - Effect of operating fluids (e.g., oil, anti-freeze, brake fluid) 	<ul style="list-style-type: none"> - Determine cause and correct it (e.g. leak on the engine) ⇒ Change V-rib belt
<p>Damage to back of belt</p> 	<ul style="list-style-type: none"> - Surface of tensioner or idler pulley damaged - Effect of foreign object - Belt too old 	<ul style="list-style-type: none"> - Inspect tensioner and idler pulleys and replace as necessary - Remove foreign object, check cover and install it correctly - Replace belt ⇒ Change V-rib belt
<p>Unusual wear</p> 	<ul style="list-style-type: none"> - Tension too low - Effect of foreign object or foreign media - Alignment error - Belt pulley defective 	<ul style="list-style-type: none"> - Ensure proper installation and adjust tension correctly - Determine cause and correct it - Check axis positions on drive, parallelism of axes and bearing play on pulleys, replace as necessary - Inspect pulley and replace as necessary ⇒ Change V-rib belt

<p>Noise generation</p> 	<ul style="list-style-type: none"> - Tension too high/low - Drive overloaded - Alignment error - Effect of foreign media 	<ul style="list-style-type: none"> - Ensure proper installation and adjust tension correctly - Inspect pulleys and drive components and their bearing play - Check axis positions on drive, parallelism of axes and bearing play on pulleys, replace as necessary - Determine cause and correct it ⇒ Change V-rib belt
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