

# Gasoline Systems

## Pushbelt for continuously variable transmission



**BOSCH**

Invented for life

### CVT with pushbelt



### Customer benefits

- ▶ Up to 7% lower fuel consumption than a manual transmission and subsequently reduced CO<sub>2</sub> output
- ▶ No loss of torque during shifting
- ▶ High comfort and dynamic driving behavior
- ▶ Ideal combination in hybrid drivetrains
- ▶ Compact installation space, lightweight
- ▶ More cost-efficient than other automatic transmissions due to smaller number of components
- ▶ Easily scalable according to required power density
- ▶ High power density and optimal NVH behavior (Noise, Vibration, Harshness)

The CVT is a stepless automatic transmission which transfers the engine's output power to the driven axle using a pushbelt. It varies the transmission ratio continually without interrupting the power transfer between the engine and the wheels. Large-scale production of the CVT started in 1985. The CVT can be applied in passenger cars with torques up to over 400 Nm.

### The pushbelt

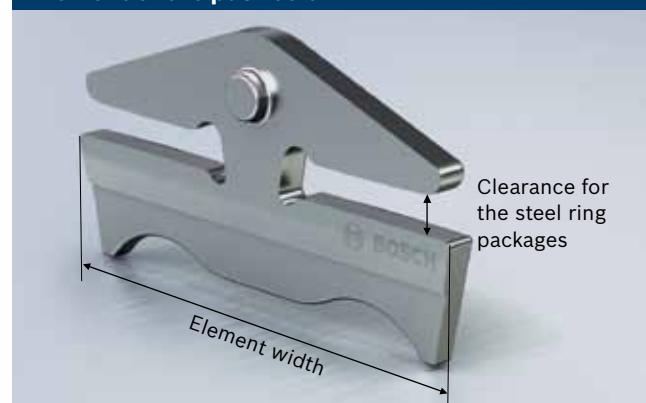
Bosch develops and manufactures the pushbelt for the CVT. The pushbelt is made up of hundreds of individual, specially designed steel elements, which are strung together along two high-alloy steel ring packages. The pushbelt can be adapted to the required power density by varying the number of ring packages and the width of the steel elements.

By continually developing the steel rings and the steel elements we increase the durability of the pushbelt and enable higher loads. One particular focus of development is downsizing in order to reduce weight and volume.

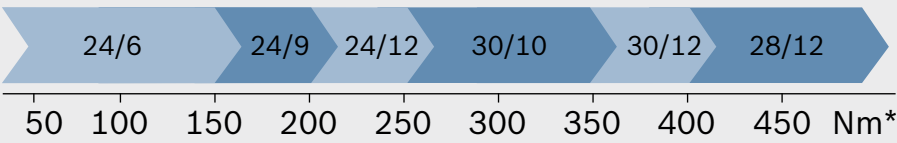
### Steel elements



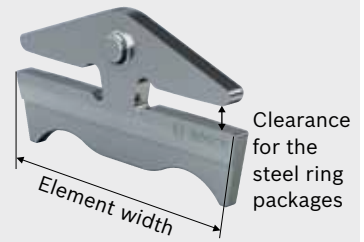
### Element of the pushbelt



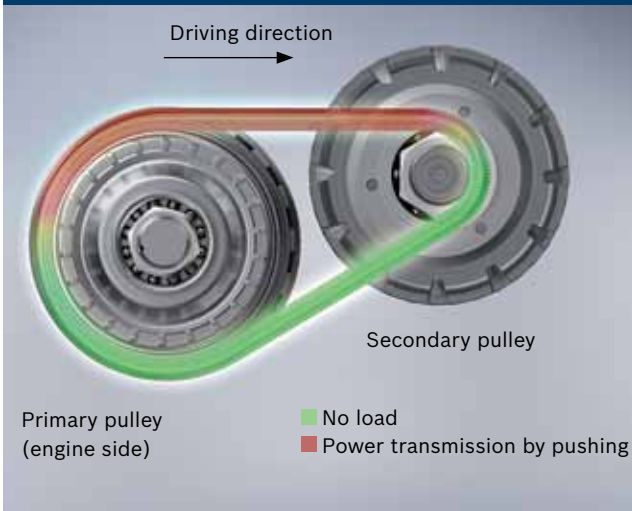
**CVT torque range**



\* Indicative: Real limits of load and torque to be discussed per application



**Function of the CVT**



**Function**

The driving power is transmitted between two pulleys by pushing the CVT pushbelt. Each pulley consists of a pair of conical moveable sheaves which allows varying the pushbelt's radius infinitely so the CVT achieves an infinite number of transmission ratios.

Transmitting power by pushing rather than pulling makes the connection between the pulleys extremely strong and enables high loads.

**Optimal engine operation**

The special CVT transmission mechanism and intelligent electronic control always provide an optimal balance between required torque and engine speed, thus allowing the engine to operate as efficiently as possible at all times. Because the engine operates at an ideal level of efficiency, it ensures low fuel consumption and reduced CO<sub>2</sub> output.



**Robert Bosch GmbH**  
Gasoline Systems

Postfach 300240  
70442 Stuttgart  
Deutschland

[www.cvt.bosch.com](http://www.cvt.bosch.com)

Printed in Germany  
292000P15V-C/CCA-201309-En