Measuring and fitting tools
for professional belt replacement
Driving is enjoyable - if your safety is assured. That's the job of mechanics in the aftermarket business: They maintain and fit products which not only protect the vehicle's engine from damage but also - and above all - ensure the safety of the driver. A highly responsible job, which has to be carried out with absolute precision. Those wishing to master its challenges in hectic everyday workshop operations need reliable support materials and equipment.
Fitting and maintaining belts to perfection.

Measuring and fitting tools

Power transmission belts are decisive for operating safety. They determine the interplay between the individual components of the belt drive - and accordingly the performance and useful life of the engine. Fitting them correctly is a highly precise operation.

This challenge can be mastered securely and reliably with ContiTech Power Transmission Group products: Replacing belts, checking tension and alignment - in every operation connected with belts ContiTech supports you with the right technical equipment. Our measuring devices and fitting tools are user-friendly and suitable for all standard vehicle types. They are versatile, robust and easy to operate.
In the case of timing belts and multi-V-belts, incorrect tension is the most frequent cause of breakdown. The latest method for testing belt tension is frequency measuring.

The ideal solution for this purpose is the Belt Tension Tester BTT Hz. If you pluck the belt - like the string of a guitar - the microphone system records the vibrations. In response, the BTT Hz displays the frequency of the vibrations in hertz. The value can then be compared with the data in the accompanying manual, enabling the tension to be checked and adjusted if necessary. The device only provides a value if all the measurement settings are correct, thus actively preventing measuring errors.

With its two microphones, the BTT Hz is not sensitive to ambient noise and accordingly provides especially precise results. A further advantage: The BTT Hz is compatible with all OE brands.

**Contents**
- Belt Tension Tester BTT Hz
- User guide in eight languages
- 9V battery
- CE declaration of conformity
- Quick start guide
- Data manual with setting values

**Technical data**
- Measurement range: 30 to 520 Hz
  - +/-1Hz<100Hz; +/-1%>100 Hz
- Dimensions (LxWxH):
  - Case: 400x300x110mm
  - Device: 100x180x30 mm
- Weight: Device 1780 g (overall weight), 240 g (device)

**Benefits**
- Fast and simple testing of timing belts and multi-V-belts
- Acoustic measurement in hertz
- Self-test function
- Double Microphone Technology (DMT) ensures insensitivity to ambient noise
- An acoustic signal indicates successful measurement
- Measuring head made of robust ABS plastic
- The setting values are vehicle-related, which means that the device is also suitable for the belts of other manufacturers

The way it’s done

- Belt tension should always be tested when the engine is switched off.
- Hold the measuring head transversely across the top of the belt in such a way that one of the two microphones is positioned over the belt and the other one is focused past it. When a successful measurement has been obtained, the device emits an acoustic signal.
- For all standard vehicle types, the accompanying data manual indicates the point on the belt where the measurement has to be made.
## TOOL BOX

### The full package for belt change operations:

**TOOL BOX**

One for all. Our TOOL BOX provides the basic equipment for all standard vehicle models: It contains the tools required for maintenance, fitting and removal of power transmission belts. From locking aids via a matching socket wrench set for timing belts to precision pulley puller for injection pump pulleys with a gap of around 5 to 60 mm.

### Contents

- Locking tools and pins for camshafts/crankshafts
- Stethoscope for locating noises in engines, gears, cogs, bearings etc.
- Exclusive combination – only available from ContiTech
- All standard tools immediately at hand
- Top quality tools for professional use
- Made in Germany

### Benefits

- Top quality tools for professional use
- Made of strong, premium-quality steel
- All standard tools immediately at hand
- Exclusive combination – only available from ContiTech
- Accessibly laid out in a robust case
- Tooling ‘Made in Germany’

### The way it's done

- The table on the right-hand page lists the individual tools and their application.
- Together with TOOL BOX V01 and TOOL BOX Asian Cars they cover all standard vehicle manufacturers.

### Parts list / Area of application

<table>
<thead>
<tr>
<th>No.</th>
<th>OE tool no.</th>
<th>Designation</th>
<th>Application</th>
<th>e.g. suitable for</th>
<th>Article no.</th>
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</table>

**Art. No. 65 57 237 000 TOOL BOX**

**Made in Germany**
Belt replacement for Asian vehicles: TOOL BOX Asian Cars

### Benefits
- Top quality tools for professional use
- Made of strong, premium-quality steel
- Tooling 'Made in Germany'
- For the most common Asian vehicles in Europe
- Exclusive combination - only available from CantTech
- Accessibly laid out in a robust case

### Contents
- A range of setting and locking pins
- Locking tools for the camshaft
- Multilingual manual with tool designations, original part numbers and vehicle applications

### Art. No. 65 76 476 000

### The way it's done
- The table on the right-hand page lists the individual tools and their application.
- The TOOL BOX and TOOL BOX V01 provide the ideal supplement, enabling the standard vehicles used in Europe to be covered.

### Parts list / Area of application

<table>
<thead>
<tr>
<th>No.</th>
<th>OE tool no.</th>
<th>Designation</th>
<th>Quantity</th>
<th>e.g. suitable for: Article no.</th>
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<td>4</td>
<td>Hex screwdriver 1x 2.5x 26</td>
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<td>KS0212 03 Mazda 644212-01 Mazda 644212-02 Mazda 162125 Mazda</td>
<td>Setting gauge for camshafts</td>
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<td>Ford Focus 1.4 1.6 Ti-VCT; 1.8; 2.0; 2.0 TDCi (1998-&gt;); Carisma 2.0 Ti-VCT; 1.8; 2.0 Ti-VCT; 1.8 TDCi (1999-&gt;) KL-0680-10 A</td>
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Changing timing belts in Audi, Seat, Škoda & VW cars: TOOL BOX V01

Audi, Seat, Škoda and Volkswagen cars have special features which are relevant to the workshop. For example, with some engines the multi V-belt is mounted across the alternator. This means that a specific tensioning wrench is required for the alternator.

For this purpose ContiTech has developed its TOOL BOX V01, which contains all the necessary locking aids, tensioning and retaining tools for the replacement and maintenance of belts.

Contents
- Locking tools and retaining pins for crankshafts / camshafts
- Counterholder for tensioning pulleys
- Multilingual manual with technical data,互联 part numbers and vehicle applications

Benefits
- Top quality tools for professional use
- Made of strong, premium-quality steel
- Tooling ‘Made in Germany`
- The main standard tools for Volkswagen engines always at hand
- Exclusive combination – only available from ContiTech
- Accessibly laid out in a robust case

The way it’s done
- The table on the right-hand page lists the individual tools and their application.
- Recommended extra: large counterholder VW OE No. 3036. This is part of the TOOL BOX (see P. B).
- The TOOL BOX and TOOL BOX Asian Cars provide the ideal supplement, enabling the standard vehicles used in Europe to be covered.

Parts list / Area of application
Maintaining and changing overrunning alternator pulleys: TOOL BOX OAP

Overrunning alternator pulleys (OAP) reduce vibrations in the accessory drive, thus extending the operating life of the belts and accessory drives and minimizing running noise.

For alternators, vehicle manufacturers use overrunning alternator pulleys and overrunning alternator decouplers (OAD), which reduce vibrations even more. The overrunning alternator pulley is a further development of the rigid belt pulley on the alternator. Thanks to its overrunning clutch, it damps the vibrations which are generated by cyclic irregularities in the crankshaft during belt operations. It also enables the engine speed to be reduced rapidly in the event of sudden load changes. An alternative design is the overrunning alternator decoupler, which also offers a damping function.

However, to make sure that these operate correctly they have to be fitted with total precision. The TOOL BOX OAP contains two combination wrenches with socket heads as counterholders and cap nuts. These offer excellent leverage with minimal exertion of force for the fitting and dismantling of OAPs and OADs.

Prepared for anything: With TOOL BOX OAP the ‘One for all’ principle applies. The reason: The socket heads have functional dimensions and are suitable for all standard alternators.

Contents
- 12-part toolset
  - two combined alternator wrenches
  - six socket heads as counterholders for the belt pulley shaft
  - four cap nuts for releasing and tightening the central nuts

Benefits
- One for all: Fits all standard overrun pulleys
- Parts can be combined in different ways
- Top quality tools for professional use
- Tooling ‘Made in Germany’
- Made of strong, premium-quality steel
- Accessibly laid out in a robust case
- An alternative to original tools

Overrunning alternator pulleys and overrunning alternator decouplers can be identified by their cover caps. Belt pulleys have no cover caps.

Tip: Defective OAPs can be identified by the flapping belt or blocked overrunning pulley.

Tip: OAPs are often fitted very tightly at the factory. Inferior quality tools can easily break during dismantling operations, which is why premium-quality tools are essential for this purpose.

Video guide to the use of TOOL BOX OAP:
Everything aligned:
LASER TOOL

With a multi V-belt drive imprecisely aligned belt pulleys can be identified by typical noises. But neither the eyes nor the ears can locate where the offset or angular misalignment is affecting the serpentine drive. The LASER TOOL locates these alignment errors.

By multiple measurements in various directions and focusing on a number of drive pulleys even the slightest misalignment can be diagnosed with precision. Regardless of whether plastic or metal is involved. The alignment gauge does not require a conventional magnetic bracket, and can therefore do just as good a job on plastic as on metal.

Contents
> Laser tool with bracket for attachment on the belt pulley
> Laser glasses
> Alignment gauge and calibration tool
> User guide
> Battery

Benefits
> Reliable identification of alignment errors
> Easy to use
> Bracket without magnet – suitable for plastic pulleys
> Also suitable for pulleys which are difficult to access

The way it’s done

> You position the laser on the ribs of one belt pulley and direct the laser beam at the opposing pulley.
> The LASER TOOL is classified as a non-hazardous Class IIIa laser. The enclosed glasses are not safety goggles but are intended to enhance the brightness of the laser.

Video guide to the use of the LASER TOOL:
Fitting elastic belts: UNI TOOL ELAST

Elastic belts have a special tensile member and are only used in certain kinds of engine. As a result a special tool is required for this purpose, because in many vehicles this is the only way to fit an elastic belt without damage.

The UNI TOOL ELAST is a universal tool for elastic multi-V-belts and enables the fitting of a wide range of these belts. ContiTech offers TOOL kits with disposable tools for vehicles to which this tool is not suited.

The UNI TOOL ELAST consists of a special tool for pre-tensioning the belt and fitting it onto the belt pulleys. The special feature is that thanks to its design it fits almost any belt pulley, even those without indentation, and some double pulleys.

The screw which is supplied ensures that the tool can’t slip off, and it guides the UNI TOOL ELAST in fitting the belt. The strap which is also supplied enables the belt to be removed simply, fast and above all without damage.

Contents
> Universal fitting tool
> Drive screw
> Strap for removing the belt without damage
> User guide

Benefits
> Low-cost alternative to expensive special tools
> Enables elastic belts to be removed without damage
> Easy to use
> Covers a large range of vehicles - also for use on flat pulleys without indentation

The way it’s done

> The ContiTech ELAST TOOL F01 is also available for changing the elastic multi-V-belt in some Ford and Volvo models.
Changing the elastic multi V-belt in Ford and Volvo cars:

ELAST TOOL F01

Difficult, but not impossible: In some Ford and Volvo engines elastic multi V-belts cannot be fitted using universal tools – the belt slides off the water pump’s flangeless pulley in the process. ELAST TOOL F01 offers workshops the right special tool for the job.

They can use this to replace the alternator belt without problems in the Ford Focus, C-Max, Mondeo 1.4/1.6 l and Volvo S40, C30 and V50 1.6 l gasoline engines.

The second, shorter belt – for the air-conditioning compressor or the servo pump, depending on the car – can be changed using the fitting tool from the relevant Multi V Belt + Tool Kit or the UNI TOOL ELAST universal tool.

Contents

> Fitting tool for fitting on the water pump pulley
> Hoop guard for the crankshaft pulley
> User guide

Benefits

> Prevents damage to the belt or belt pulley
> Installation in accordance with manufacturer’s specification

The way it’s done

> Matching tool for fitting the alternator belt:
  - Complete package Elast Multi-V Belt + Tool or
  - UNI TOOL ELAST

Download detailed fitting instructions:
Precise measuring:
Length gauge

Measuring belt length quickly and precisely. With the ContiTech length gauge, the precise length can be measured quickly and simply using the length gauge, which is suitable for all standard belt profiles.

Benefits
> Easy to use
> Easy reading of measurement
> Reliable measurement values
> For V-belts and multi V-belts

Here's how it's done: Insert the belt, apply tension and read the exact value from the lower scale.

Suitable for AVP10, AVX10, AVP13, AVX13 V-belt profiles and multi V-belts with a PK profile.

Measurement range: 360-2520 mm

The way it’s done
> Elastic multi V-belts can shrink if they are stored for a long time. When they are fitted the amount by which they have shrunk is automatically offset. For this reason there is basically no point in measuring elastic belts.

Identifying wear:
Belt Wear Tester

In the past tiny cracks on the belt showed that it had to be replaced. Today wear and tear is no longer indicated by cracks in the rubber but by ribs which become increasingly thin. However, these can’t normally be identified with the naked eye.

The Belt Wear Tester, on the other hand, enables you to detect wear and tear on multi V-belts quickly and reliably. Simply draw the Belt Wear Tester along the grooves of the motionless belt. If its teeth run smoothly along the grooves then everything is okay. If the teeth get caught, don’t run smoothly or if there is too much play on the Belt Wear Tester, the structure of the belt is defective. The cause could be faulty or misaligned belt pulleys, or simply old age. Whatever the cause, the belt has to be replaced.

Benefits
> Easy to use
> Easy reading of measurement
> Reliable measurement values
> For V-belts and multi V-belts

Here’s how it’s done: Insert the belt, apply tension and read the exact value from the lower scale.

Suitable for AVP10, AVX10, AVP13, AVX13 V-belt profiles and multi V-belts with a PK profile.

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Video guide on using the Belt Wear Tester:
Changing power transmission belts is an everyday part of workshop operations, but there are a number of things to keep in mind. We’ve summarized the main points.

Timing drive

- Tensioning and idler pulleys are also subject to wear and tear and should be replaced when the belt is changed.
- Instructions for installation should be followed.
- Make sure the right type of profile is used.
- With vehicles in which the timing belt also drives the water pump, the pump should always be replaced at the same time.
- Timing belts should only be changed when the motor has cooled down.
- Timing belts, tensioning and idler pulleys as well as water pumps are sensitive precision parts. Force should not be used during fitting or removal.
- When screws are tightened, the right amount of torque should always be used.
- Do not use any sprays or chemicals to reduce belt noise.

> The Belt Tension Tester BTT Hz should be used for testing belt tension.
> Only turn the engine with the timing belt fitted.
> Never change the relative position of the crankshaft to the camshaft.
> Before switching on the engine check the operation of the timing belt for:
  - misalignment
  - offset
  - tilting
> Even automatic tensioning pulleys are often only semi-automatic, which means that manual setting of the tension is required during installation.

> Timing belts should never be kinked! If the sensitive fiber-glass tensile member in the interior breaks, the belt can tear.

Change sticker: ‘Smart Sticker’

Knowing at a glance when the timing belt was replaced - the change sticker is not only practical but important. However, it can get hot in the engine compartment, not to mention damp and dirty. This often affects the lettering, and an unreadable sticker is of very little use.

For this reason the ContiTech change sticker consists of premium-quality foil which gives the lettering long-term protection. The improved change sticker is included with all ContiTech Timing Belts and Timing Belt Kits.

Accessory drive

- Accessory power transmission belts, overrunning alternator pulleys and torsional vibration dampers are subject to wear and tear. They should be checked with every belt change and replaced if necessary.
- Instructions for installation should be followed.
- If the V-belt makes a squealing noise, the alignment of the discs should be checked and the belt changed if necessary.
- When rotating parts are fitted, the direction and location of all pulleys should be taken into account.
- Do not use any sprays or chemicals to reduce belt noise.
- Never replace normal multi V-belts by elastic multi V-belts - and vice versa! Check belt wear on multi V-belts with the Belt Wear Tester (BWT).
- Elastic multi V-belts are self-tensioning - no belt tensioner is required.
- Elastic belts are fitted under load.

> Elastic multi V-belts can be re-used if they have been removed without damage.
> ContiTech offers a number of solutions for the fitting of elastic multi V-belts:
  - Complete package: Elast Multi-V Belt + Tool or
  - various universal and special tools.
> Use Belt Tension Tester BTT Hz for testing tension.
> Overrunning alternator pulleys and overrunning alternator decouplers must only be operated with cover caps.
> In the case of noises or damage in drive operations the overrunning alternator pulley should always be checked.
> In the event of visible damage to the rubber track the torsional vibration damper (TVD)/torsional vibration damper isolator must always be changed at the same time.
Warning: It is possible for the damage to the TVD to appear only on the back.
> Check alignment of belt pulleys using the LASER TOOL.

Replacement intervals

Replacement intervals are prescribed by the vehicle manufacturer and are mandatory. They must not be extended. If no replacement interval has been prescribed by the vehicle manufacturer, ContiTech recommends changing the belt at the latest after 120,000 km or after 7 years, whichever occurs first.

Storage

All belts and accessories should be stored until use in their original packaging. The storage location should be dry, free from dust, cool (15 to 25°C) and without direct sunlight. They should not be stored near highly flammable, aggressive media such as acids or ozone-generating facilities. Avoid contact with all liquids. Maximum storage period: 5 years from date of production (see packaging).


View cases of typical defects and their cause:

Video guides:

Timing Belts
V-Belts
Multi-V Belts

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Finding instead of searching: Our PIC offers free fitting information and more

Need data, instructions or other information on a particular article? Use our Product Information Center (PIC). Here you’ll find useful supplementary information on all belts and kits.

Available round the clock, always up-to-date and free of charge: At www.contitech.de/pic you will receive technical data such as parts lists, images, fitting advice and detailed fitting instructions. You can search the data by product name and select what you require.

Our PIC is also available for your smartphone or tablet: simply scan the QR code on the product packaging and the relevant page of the PIC will open up.

Technical data/parts list
- Components of the product
- Automotive application

Fitting instructions
- Download fitting instructions
- Technical instructions

General information
- General information on replacement intervals
- Problem and diagnosis cases

Vehicles
- Automotive applications for the specific article

Aid for the wall: Workshop poster

Recognizing frequent defects and reliably identifying their causes: For a quick overview of typical defects and replacement intervals ContiTech provides practical workshop posters on timing belts, multi V-belts and torsional vibration dampers.

Order from: www.contitech.de/mediaservice
Knowing what gets the job done:
Professional training sessions

ContiTech supports workshops not just with products but also with the necessary expertise. Our training focuses both on theory and on practice. Regardless of whether you just wish to refresh your know-how or want hands-on experience – our experts are ready to provide all the help you need.

Technical training
Throughout Europe experts pass on their professional expertise relating to power transmission belts. At these training sessions mechanics from independent workshops learn how to handle timing belts, the characteristics of timing belt operation and the causes of belt damage. Other subjects for theoretical training: timing belt profiles and materials, and the application of tension testing devices.

CONTENTS
> Fitting and maintaining belt drive components
  Power transmission belts
  Tensioning and idler pulleys
  Water pumps
  Crankshaft pulleys (TVD)
  Overrunning alternator pulleys
> Diagnosing faults on the basis of breakdown and damage cases
> The use of measuring and fitting tools
> Special features and assembly of elastic multi V-belts
> Safety tips

Target group: Senior automotive mechanics, mechanics and apprentices

Group size: 20 to 30 participants

Duration: approx. 3 hours

Cost: paid by ContiTech

Registration: through your ContiTech dealer

Technical on-the-job training
During technical training participants change the timing belt on five different practice engines under the supervision of an experienced trainer. In the process they get to know special tools.

CONTENTS
> Technical information as for technical training sessions
> Changing timing belts on Audi, Mitsubishi, Opel, Renault and VW engines
> The use of measuring and fitting tools

Target group: Senior automotive mechanics, mechanics and apprentices

Group size: 8 to 12 participants

Duration: approx. 6 hours

Cost: 169.00 euros net per participant

Registration: through your ContiTech dealer
ContiTech. Engineering Next Level

As a division of the Continental Group, ContiTech is a recognised innovation and technology leader in natural rubber and plastics. As an industry partner with a firm future ahead of us, we engineer solutions both with and for our customers around the world. Our bespoke solutions are specially tailored to meet the needs of the market. With extensive expertise in materials and processes, we are able to develop cutting-edge technologies while ensuring we make responsible use of resources. We are quick to respond to important technological trends, such as function integration, lightweight engineering and the reduction of complexity, and offer a range of relevant products and services. That way, when you need us, you’ll find we’re already there.