

## Practical Tips

Original quality – the best replacement





### www.contitech.de/aam





# CONTI® multiple V-ribbed belts, V-belts and timing belts in day-to-day use

Part of your job is to check the power transmission belts of your customers' vehicles – for safety's sake. When it's a matter of driving accessories, opt for original quality from ContiTech: CONTI-V MULTIRIB® V-ribbed belts and CONTI®-SF V-belts or a CONTI-V MULTIRIB® KIT with multiple V-ribbed belts, tensioning pulleys and/or idlers in one pack. Opt for CONTI SYNCHROBELT® timing belts or a CONTI SYNCHROBELT® KIT with timing belts, idlers, tensioning pulleys and/or guide pulleys in one set. They help avoid the worst case situation of expensive engine failure. Opt for the quality that leading vehicle manufacturers prefer as original equipment.

Our environmental management system is certified to DIN EN ISO 14001 and provides for reduced waste and solvents in production and for careful handling of raw materials. This brochure gives you some practical tips on how to handle and install belts so that they run smoothly and have a long service life.

The ContiTech Power Transmission Group develops and supplies a wide range of quality products for all prominent vehicle manufacturers – from individual drive belts to complete power transmission systems. In the drive for success. This is not only our motto but also a very promising prospect for our customers. The assistance we provide for the independent repair trade is backed by our participation in support services such as TecDoc, TecCom, Partslife and Mr. ATZ.







P. 4-9



Multiple V-ribbed belts,



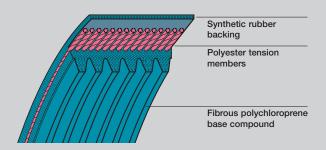


	v-beits and kits
P. 4-5	Product
P. 6-7	Changing the belt
P. 8	Checklist
P. 9	Troubleshooting
P. 10-15	Timing belts and kits
P. 10-11	Product
P. 12-13	Changing the belt
P. 13	Profiles of timing belts and timing belt pulleys
P. 14	Checklist
P. 15	Troubleshooting
P. 16-17	Wall display racks and sales stands
P. 17	Storage
P. 18	Gauges
P. 19	Equipment

## Original equipment quality products – safe, reliable and efficient

#### **CONTI-V MULTIRIB® multiple V-ribbed belts**

The CONTI-V MULTIRIB® multiple V-ribbed belt for standard¹¹ and serpentine²¹ drives in cars and commercial vehicles is extremely safe, reliable and efficient. When fitted in serpentine drives with automatic tensioning, this belt does not need to be retightened.



### Size designation (example) 6 PK 1980

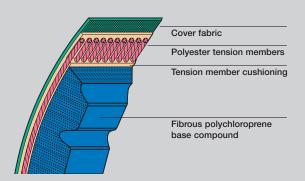
6 number of ribs

PK profile designation/
spacing of ribs 3.56 mm

1980 effective length (mm)

#### **CONTI®-SF V-belts**

The CONTI®-SF V-belt for standard drives¹¹ in passenger cars and commercial vehicles is maintenance-free, safe, reliable and efficient. This belt does not need to be retensioned once fitted properly.



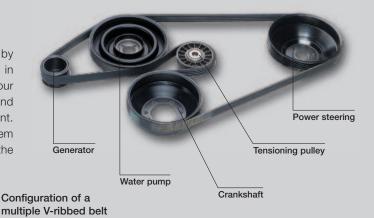
Size designation (example)

AVX 10 x 950 AVX profile

belt width (mm)total length (mm)

#### Tensioning pulleys, idler pulleys

When opting for multiple V-ribbed belts made by ContiTech, you are choosing a superior product in original equipment quality. To ensure the quality of our products and kits, we only use tensioning pulleys and idlers made by leading suppliers of original equipment. These matching components of a belt drive system ensure that the multiple V-ribbed belt provides the correct tension, guidance and power transmission.





<sup>1) 2</sup> to 3 pulley drives with a fixed tensioning pulley

<sup>2)</sup> assemblies lying in one plane and driven by one belt

#### **CONTI-V MULTIRIB® KIT**

Depending on the application, this product combines multiple V-ribbed belts, tensioning pulleys and/or idlers in a single pack. Replacing the matching parts at the same time the multiple V-ribbed belt is changed gives extra engine reliability and means greater safety for the motorist. There are also benefits for the garage: no need to order individual parts, all items are perfectly matched, and there is sturdy packaging to protect the products before they are used.







Kit with torsional vibration damper

All multiple V-ribbed belts and V-belts are shown in the comprehensive ContiTech application guides and match up lists for passenger cars and commercial vehicles as well as on TecDoc, the electronic data catalogue (CD ROM).

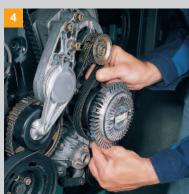


## Changing the belt correctly – for 100% drive performance









#### Changing a multiple V-ribbed belt

#### If the belt drive has an automatic tensioning system:

- Use appropriate tools to move the tensioner to belt removal position.
- Secure the tensioner in this position. (1)
- Make sure you are familiar with the belt configuration (drawing a sketch helps).
- Remove the belt.
- Check tensioner, back idler pulleys and belt pulleys for any wear or damage. (2)
- Ensure you have the correct belt size. First place it over the plain and flanged pulleys (3), and then push it over the smooth back idler pulleys. (4)
- Check that the belt is properly seated in the grooves.
- Release the tensioner securing mechanism with a suitable tool and move the tensioner against the belt.
   Remove all tools.
- Check that the belt is properly seated on all pulleys.
- Start the engine and watch that the belt is running along its intended path.

- Turn off the engine. Use the Krikit 2 or Krikit 3 tension gauge to check the belt tension on the taut section of the belt (5). If the tension is incorrect, check the tensioning system against the manufacturer's data.
- Dispose of the replaced belt in an environmentally friendly way.

#### If the belt drive includes a fixed tensioning pulley:

- Release the tensioning system and move it into the drive unit.
- Make sure you are familiar with the belt configuration (drawing a sketch helps).
- Remove the belt.
- Check tensioner, back idler pulleys and belt pulleys for any wear or damage.
- Ensure you have the correct belt size. First place it over the plain and flanged pulleys, and then push it over the smooth back idler pulleys.
- Check that the belt is properly seated in the grooves.









CONTI® BTT Hz (Belt Tension Tester): Electronic alternative for measuring the tension of multiple V-ribbed belts

• Use the Krikit 2 or Krikit 3 tension gauge to check the belt tension on the taut section of the belt. (5)

New multiple V-ribbed belts Profile PK: 12-14 kg/rib

Used multiple V-ribbed belts Profile PK: 9-10 kg/rib

- Let the engine run for a few minutes, then switch it off. Check the tension and make any necessary adjustments.
- Dispose of the replaced belt in an environmentally friendly way.

#### **Changing a V-belt**

Changing V-belts is similar to changing multiple V-ribbed belts with a fixed tensioning pulley. Use the Krikit 1 tension gauge to adjust the belt tension (6).

New V-belts

Profile AVX 10: 40 kg Profile AVX 13: 55 kg

**Used V-belts** 

Profile AVX 10: 25-30 kg Profile AVX 13: 40-45 kg

#### Safety tips

- When installing belts, only use the correct tool (not a screwdriver). The belt must be installed without the use of force.
- Belt dressing or similar materials should be used only in emergencies to eliminate noises.
- Never allow caustic or corrosive liquids to come into contact with the belt drive, as they could damage the plastic parts.
- Check that the belt pulleys are in flawless condition (no dirt, rust or burrs) and are the correct size for the belt profile.
- Ensure that the pulleys are properly aligned parallel to the axis.
- V-belt drives in sets contain belts in matched lengths. If any one belt fails, all belts must be replaced.







### Problem – diagnosis – solution: Building on experience

#### Checklist for multiple V-ribbed belts

Tension

Damage to the back of the belt

- Tensioning system?
- Back idler pulleys/ Back idler roller bearings?
- Foreign matter?

Unacceptable wear on belt ribs – cracks/separations

- Foreign matter?
- Mounting of pulleys?
- Pulley alignment?
- Ageing?

Dirt accumulation

- Leaks in the engine or engine compartment?
- Drive noises
- Tension?
- Pulley alignment?
- Dirt accumulation?

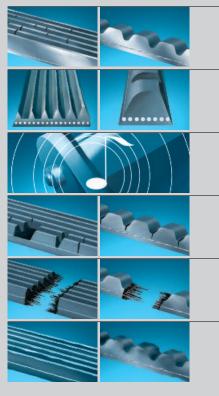
#### **Checklist for V-belts**

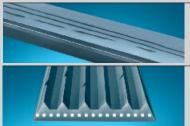
Tension

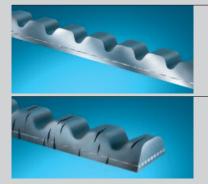
- Tension system?
- Wear on flanks
- Pulley alignment?Mounting of pulleys?
- Cracks/separations
- Foreign matter?
- Ageing?
- Dirt accumulation
- Leaks in the engine or engine compartment?
- Drive noises
- Tension?
- Pulley alignment?
- Dirt accumulation?

Also available as poster











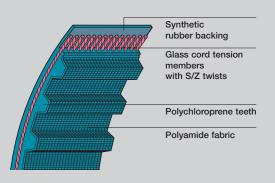
Problem and cause Multiple V-ribbed belts/V-belts	Solution
Hardened, polished flanks	
① Incorrect tensioning	① Change the belt, adjust tension correctly
② Tension member of belt damaged	② Change the belt, fit properly
by incorrect fitting	
Uneven wear on ribs	@ <b>-</b>
① Pulleys are not aligned	① Examine the drive. Line up or, if necessary,
② Substantial belt vibrations	replace any non-aligned pulleys, change the belt  ② Check the tension. If necessary, tighten or change the be
	© Check the tension. If necessary, tighten or change the be
Running noises from belt	
① Insufficient tension	① Tighten or change the belt
② Belt past its useful life	② Change the belt
Cracks/separations in belt body/ribs	
① Belt tension is too high/low	① Change the belt, adjust tension correctly
② Belt past its useful life	②③ Change the belt
③ Foreign matter	
Crack in the belt after a short running time	
① Tension members damaged as	① Change the belt, fitting it correctly
a result of incorrect fitting	② Change the belt, adjust tension correctly
Belt excessively tensioned	
Dirt accumulation on the belt	0.5
① Leaks in the engine or engine compartment	① Repair leak(s), change the belt
(e.g. escape of oil, antifreeze etc.)	
Problem and cause Multiple V-ribbed belts	Solution
Damage to the back of the belt	
① Back idler pulley defective (sluggish, surface damaged,	① Change the belt, replace the back idler pulleys
e.g. by foreign matter)	
Unacceptable wear of belt ribs	
① Pulleys/idlers/assemblies defective (sluggish)	① Replace pulleys/idlers/assemblies, change the belt
② Pulleys not aligned	② Align or replace pulleys, change the belt
Problem and cause V-belts	Solution
Troblem and cause V-bents	
Hardened, polished flanks (different	
Hardened, polished flanks (different tension values for belts of sets)	① Evamine the drive line up per eligned culleur
Hardened, polished flanks (different tension values for belts of sets)  ① Pulleys not aligned	① Examine the drive, line up non-aligned pulleys
Hardened, polished flanks (different tension values for belts of sets)  ① Pulleys not aligned ② Tension member of belt damaged	and fit a new set of belts
Hardened, polished flanks (different tension values for belts of sets)  ① Pulleys not aligned ② Tension member of belt damaged by incorrect fitting	and fit a new set of belts  ② Change the belt, fitting it correctly
Hardened, polished flanks (different tension values for belts of sets)  ① Pulleys not aligned ② Tension member of belt damaged	and fit a new set of belts
Hardened, polished flanks (different tension values for belts of sets)  ① Pulleys not aligned ② Tension member of belt damaged by incorrect fitting ③ Mismatching of belts  Excessive wear on flanks/flanks brittle	and fit a new set of belts  ② Change the belt, fitting it correctly  ③ Always replace a complete set of belts
Hardened, polished flanks (different tension values for belts of sets)  ① Pulleys not aligned ② Tension member of belt damaged by incorrect fitting ③ Mismatching of belts  Excessive wear on flanks/flanks brittle ① Excessive slip	and fit a new set of belts  ② Change the belt, fitting it correctly  ③ Always replace a complete set of belts  ① Change the belt, adjust the tension correctly
Hardened, polished flanks (different tension values for belts of sets)  ① Pulleys not aligned ② Tension member of belt damaged by incorrect fitting ③ Mismatching of belts  Excessive wear on flanks/flanks brittle ① Excessive slip ② Pulleys not aligned	and fit a new set of belts  ② Change the belt, fitting it correctly ③ Always replace a complete set of belts  ① Change the belt, adjust the tension correctly ② Examine the drive, line up or, if necessary, replace
Hardened, polished flanks (different tension values for belts of sets)  ① Pulleys not aligned ② Tension member of belt damaged by incorrect fitting ③ Mismatching of belts  Excessive wear on flanks/flanks brittle ① Excessive slip	and fit a new set of belts  ② Change the belt, fitting it correctly  ③ Always replace a complete set of belts  ① Change the belt, adjust the tension correctly



## Top-class products – safe to use, low noise, zero maintenance

CONTI SYNCHROBELT® timing belts in three different basic profiles (trapezoidal, HTD, STD) ensure synchronous power transmission. They are reliable, quiet and maintenance-free. They are used in passenger car engines to drive camshafts, fuel injection pumps and balancing shafts.

### **CONTI SYNCHROBELT® trapezoidal** timing belts

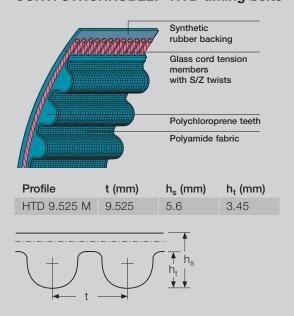


Profile	t (mm)	h <sub>s</sub> (mm)	h <sub>t</sub> (mm)
LA	9.525	4.1	1.9
LAH	9.525	4.5	2.3

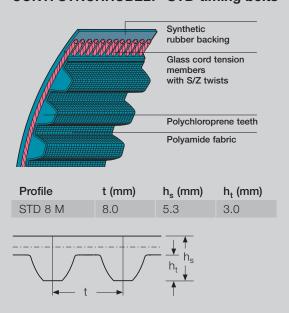


The right timing belts and timing belt kits for all vehicles are listed in the comprehensive ContiTech application guide for passenger cars and in TecDoc, the electronic data catalogue (CD ROM).

#### **CONTI SYNCHROBELT® HTD timing belts**



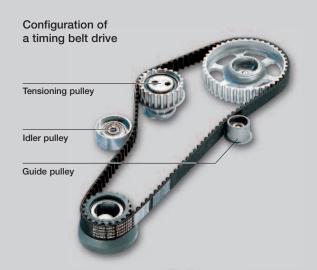
#### **CONTI SYNCHROBELT® STD timing belts**

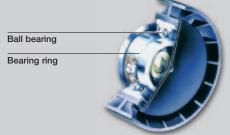




#### Tensioning pulleys, idler/guide pulleys

With timing belts from ContiTech, you are opting for a top product in original equipment quality. To ensure the quality of our products and kits we only use tensioning, idler and guide pulleys made by leading suppliers of original equipment. These matching components of a control drive ensure the correct tensioning, guiding and power transmitting of timing belts.





Tensioning roller bearing



#### **CONTI SYNCHROBELT® KIT**

Depending on the application, this product combines timing belts, tensioning pulleys, idler and/or guide pulleys, and a water pump in a single pack. Replacing the timing belt and its matching parts at the same time gives extra engine reliability and means greater safety for the motorist. There are also benefits for the garage: no need to order individual parts, all items are perfectly matched, and there's sturdy packaging to protect the products before they are used.

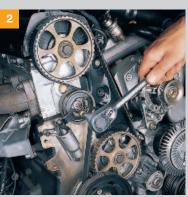
#### Be on the safe side

In modern engines timing belts and matching components are subjected to a great deal of stress. High rotational speeds, vibrations and extreme temperatures can easily have a negative effect on the functioning of parts. Cracks below the metal surface, overheating and worn-out sealing rings of bearings lead to increased metal wear and even the jamming of pulleys. So they can easily cause belt damage. If a timing belt snaps when the engine is running, the engine can sustain irreparable damage. So it is strongly recommended that timing belts and matching components are replaced at the same time, just to be on the safe side.



### Changing the belt correctly – for 100% drive performance





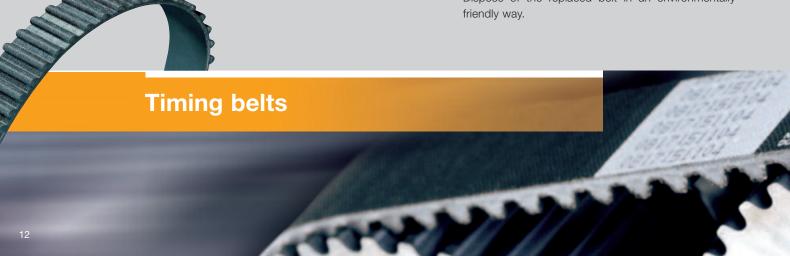


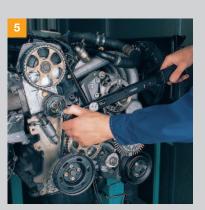


#### Changing a timing belt

- Disconnect the earth cable from the battery.
- · Remove all drive belts, pulleys or hoses that could get in the way when the timing belt cover is removed.
- Remove the timing belt cover.
- Turn the crankshaft in the running direction of the engine as far as top dead centre, and bring marking on the engine case into line with the marking on the crankshaft vibration damper and the camshaft. (1)
- Loosen the adjusting screw of the tensioning pulley.
- Pull the tensioning pulley away from the timing belt and screw the tensioning pulley tight again. (2)
- Remove the timing belt.
- · Check tensioner, smooth back idler pulleys, belt pulleys for wear or damage. If necessary replace them. (3)
- Adjust all markings until they are properly aligned.
- · Place the new timing belt on the pulleys.

- · Loosen the adjusting screw of the tensioning pulley, allowing the pulley to move freely.
- Move the tensioning pulley carefully into its final position (make proper allowance for the spring pressure). If the tensioning pulley is not automatic, tension the timing belt as specified by the vehicle manufacturer, using the tensioning device provided for this. (4)
- · Check the alignment of the markings.
- Rotate the crankshaft by at least two complete revolutions in the running direction of the engine to ensure the timing belt is properly tensioned by the tensioning pulley.
- Check the alignment of the markings once again.
- Put the tensioning pulley in its intended position and tighten the screws with the specified torque setting. (5)
- · Refit the timing belt cover as well as all drive belts, pulleys and hoses that were removed.
- Reconnect the earth cable to the battery.
- Start the engine.
- · Make any adjustments that are necessary.
- Dispose of the replaced belt in an environmentally





#### Safety tips

- When fitting belts, only use the correct tool. The belt must be placed in position manually. In no circumstances may timing belts be forced, e.g. with rim levers, on to toothed pulleys or rolled over flanged pulleys. Such action would damage the tension member.
- Never allow caustic or corrosive liquids to come into contact with the belt drive, as they could damage the plastic parts.
- Keep the belt well away from oil mist, dripping oil and other chemicals!
- Always comply with the installation instructions of the vehicle manufacturer! These are printed in the owner's manual in the section explaining how to change a timing belt.
- Fill in the sticker accompanying every new ContiTech timing belt and stick it in the engine compartment where it can easily be seen.
- Regardless of which components are defective whether tensioning pulley, idler pulley or guide pulley – all these components must be replaced!



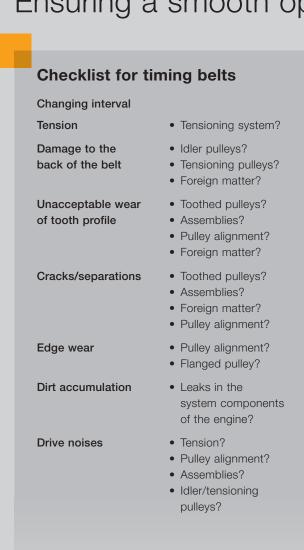


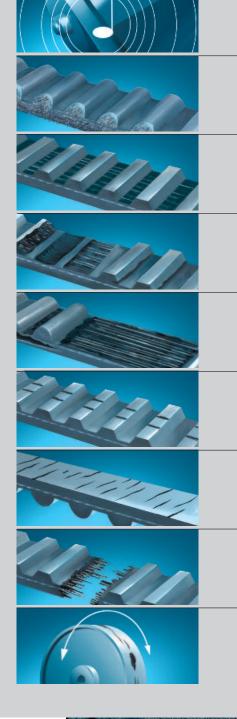
## Profiles of timing belts and timing belt pulleys

Code	Belt profile	Pulley profile	Examples of application
LA	<u></u>		Audi, Citroën, Fiat, Ford, Mazda, Opel/Vauxhall, Peugeot, Renault, Volvo, VW
LAR	$\overline{\smile}$		Audi, Fiat, Ford, Lada, Lancia, Mitsubishi, Opel/Vauxhall, Rover, Vauxhall, VW
LAN	$\overline{\sim}$		Fiat, VW
LAH	$\overline{\Box}$		Audi, Fiat, Ford, Opel/ Vauxhall, Peugeot, Porsche, Renault, Volvo, VW
LAHR	$\overline{\smile}$		Audi, Bedford, Mitsubishi, VW
LAHN	$\overline{\sim}$		Audi, VW
HTD 9.525 M	$\overline{\bigcirc}$	V	BMW, Citroën, Honda, Mazda, Opel/Vauxhall, Porsche, Renault, Rover, Volvo, VW
HTDN 9.525 M	$\overline{\mathbb{V}}$		Ford, Lada, Volvo
HTDH 9.525 M	$\overline{\bigcup}$		Opel/Vauxhall
HTDA 9.525 M	$\overline{\smile}$		Daihatsu, Honda, Mazda, Mitsubishi, Renault, Rover, Suzuki, Volvo
HTDA 8 M	$\overline{\smile}$		Daihatsu, Mazda, Nissan, Rover, Subaru, Suzuki
HTDK 8 M	$\overline{\bigcirc}$	V	Mazda, Toyota
STD 8 M	$\overline{\bigvee}$		Audi, Ferrari, Fiat, Lancia, Land-Rover, VW
STDN 8 M	$\overline{\bigvee}$		Fiat, Lancia
CHDN 9.525 M	$\overline{\mathbb{V}}$	<b>\(\tau\)</b>	Ford, Fiat, Citroën, Peugeot, Rover
CHD 9.525 M	$\overline{\bigcup}$		Fiat, Renault
CPPN 9.525 M	$\overline{\bigvee}$		Citroën, Honda, Land- rover, Peugeot, Rover



### Problem – diagnosis – solution: Ensuring a smooth operation







**Timing belts** 

	Problem and cause Timing belts	Solution
①	Running noises from belt Tension too high: Belt whines, whistles Tension too low: Belt knocks against covering	①② Adjust tension properly
① ② ③	Edge wear  Belt not parallel to axis: Belt runs against flanged pulley  Wheels axially off-centre: Timing belt cannot be properly aligned  Flanged pulley has flaws  Bearing play in components	①② Check drive, line up or, if necessary, replace any non-aligned pulleys, change the belt ③④ Replace idler/tensioning pulleys, change the belt
1)	Fabric wear in the tooth root Belt excessively tensioned Belt is overheating Timing belt pulley is worn out	Change the belt, adjust tension correctly     Find out cause (e.g. check cold performance), take corrective action, change the belt     Replace timing belt pulley, change the belt
①	Unacceptable wear of tooth flanks/ base separating and tooth shearing Tension too high/too low Trapped foreign matter Jammed timing belt pulley or tensioning pulley	Change the belt, adjust tension properly     Remove foreign matter, check covering is seated properly, change the belt     Find out cause (e.g. defective bearing), take corrective action, change the belt
1	Teeth and fabric separating from belt body Leaks in the engine or engine compartment (e.g. escape of oil, antifreeze etc.)	① Repair leak(s), change the belt
① ②	Running marks on teeth side Foreign matter in timing belt drive Flaws in teeth of timing belt pulley caused by foreign matter or tools during fitting Timing belt damaged before/during fitting	Remove foreign matter, change the belt, check the cover is seated properly     Replace timing belt pulley, change the belt, ensuring it is properly fitted     Change the belt, ensuring it is properly fitted
① ② ③	Cracks on back of timing belt Ambient temperature too high/low Contact with foreign media Back idler pulley sluggish Ageing	Find out cause (e.g. check cold performance), take corrective action, change the belt     Change the belt, check the covering is seated properly     Replace pulley, change the belt     Change the belt
① ② ③	Timing belt snaps Foreign matter in the drive Contact with foreign media Excessive tensioning Belt was kinked before/during fitting	<ol> <li>Remove foreign matter/media, change the belt</li> <li>Change the belt, check the covering is seated properly</li> <li>Change the belt, adjust tension properly</li> <li>Change the belt and fit it correctly</li> </ol>
1	Defective system components Bearing play Damaged pulley side of belt	①② Replace the idler, tensioning and/or guide pulleys



# Sales aids – compact and easy to use

We supply wall display racks and stand-alone units that are ideal for customer self-service. These units communicate product information through their promotional panels and provide compact, high-capacity display storage.

### Hook rack, type A

#### Width 90 cm

takes max. 42 belts



#### Wall rack for timing belts and kits

#### Width 60 cm

- supplied with 18 boxes of timing belts or
- 6 boxes of timing belt kits



#### Wall rack for V-belts, type B

#### Width 60 cm

supplied with 27 hooks for max. 27 V-belts

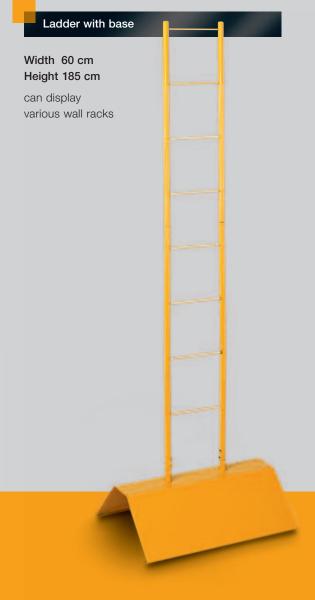


### Wall rack for V-belts and multiple V-ribbed belts, type C/E

## Width 60 cm supplied with

15 hooks for max. 75 V-belts or for max. 45 multiple V-ribbed belts





## Example of a filled sales stand

Width 60 cm, height approx. 185 cm



# Reliability – thanks to correct storage

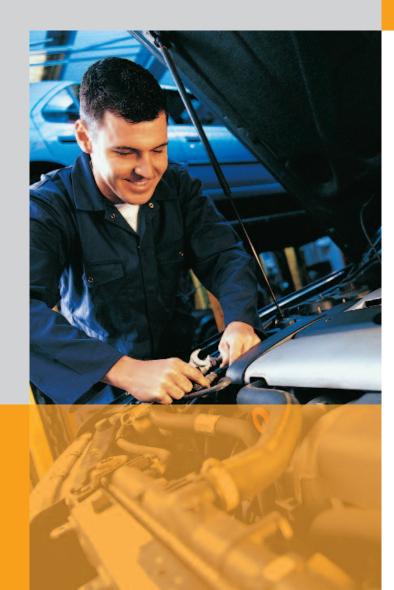
Belts should be stored out of direct sunlight, at a cool ambient temperature (15-25°C), dry and not in a draught. Correct storage will ensure that they continue to be reliable products even after a long storage time (up to 5 years).

#### Basics for V-belts/multiple V-ribbed belts

Avoid keeping belts near to any heat source. Ozone-producing equipment, such as arcing electric switchgear, should not be operated for long in areas where belts are stored. Highly flammable, aggressive materials, lubricants or acids must also be kept away from stored belts.

#### Basics for timing belts

Until they are used, timing belts should be left in their original packaging and carefully stored to avoid damage. The belts must not be buckled, as this could harm the length stability of the glass cord tension members. Highly flammable, aggressive materials, lubricants or acids must also be kept away from stored belts.



# Technical service – for perfect fitting



Particular attention must be paid to drive components, the most important control elements in the engine compartment. With ContiTech you are on the safe side, because we offer both first-class products and a comprehensive service:

- telephone hotline (+49) 511 938 5178
- technical training
- useful measuring equipment

#### Tools

For the professional replacement of V-ribbed belts and timing belts

- CONTI® TOOL BOX
- CONTI® TOOL BOX ASIEN CARS
- CONTI® UNI-TOOL ELAST

#### Measuring gauge for V-belts and multiple V-ribbed belts

- easy to use
- easy to read
- no converting

#### Tension gauges

for drives without automatic tensioning

KRIKIT 1

for V-belts

**KRIKIT 2** for multiple V-ribbed belts up to 70 kg

tension

#### KRIKIT 3

for multiple V-ribbed belts from 70 to

150 kg tension



#### CONTI® BTT Hz (Belt Tension Tester)









# Professional support – with the right equipment

The practical and time-tested application guides for cars and commercial vehicles show which drive components are right for which vehicle. ContiTech products are listed in the electronic car parts catalogue TecDoc. This catalogue matches the application guides and covers virtually all vehicles in European fleets. Well-designed

brochures and flyers provide information about ContiTech's extensive service, together with technical tips and performance details. Our illuminated signs are attention-grabbers to attract your customers. Other sales promotional material is also available. Please ask for details.



#### www.contitech.de/aam



**Power Transmission Group** 

Market segment Automotive Aftermarket

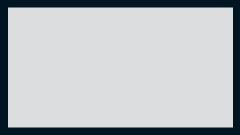
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