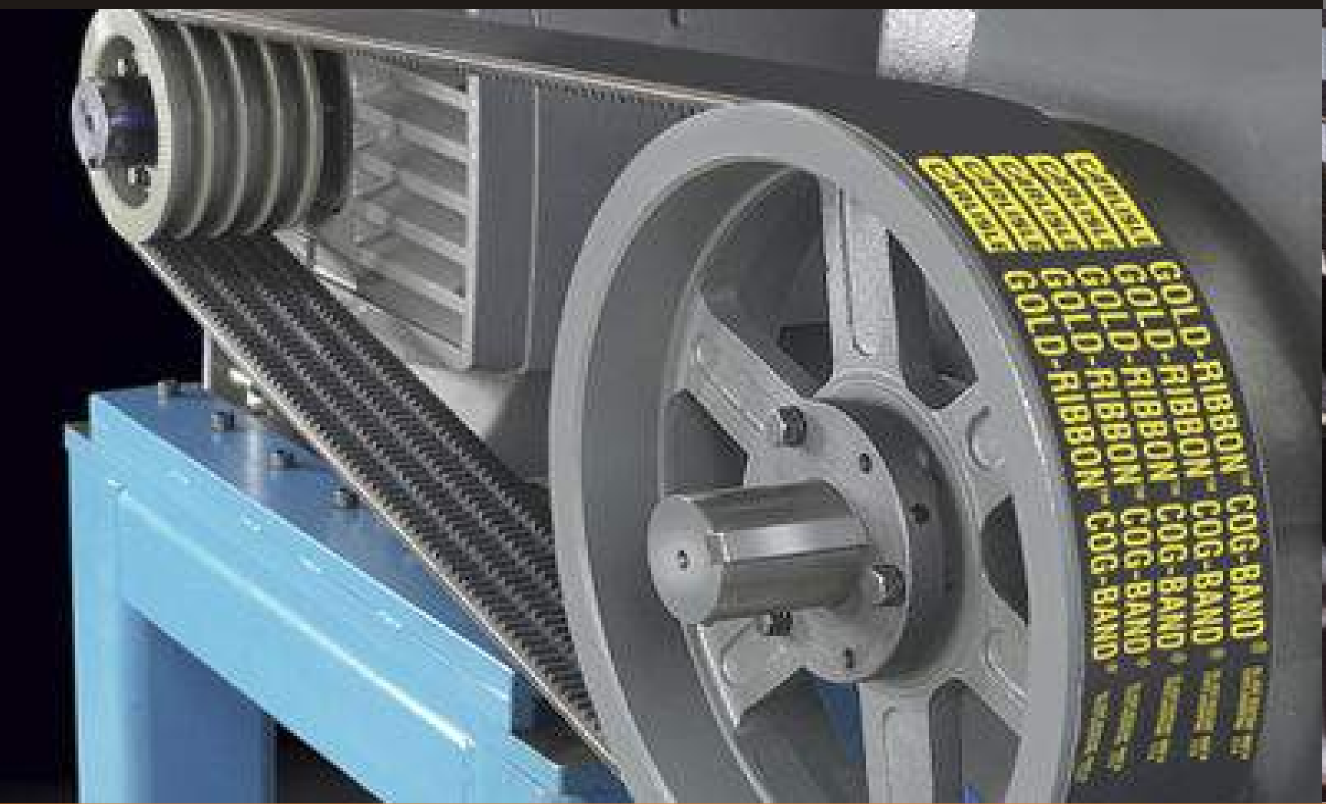
SERVICE

τεχνικό εγχειρίδιο τοποθέτησης & συντήρησης ιμάντων

ιδέες αποθήκευσης +

ορθή τοποθέτηση +

διατήρηση ισχύος +



διαχείριση αποθεμάτων +

ΒΟΥΚΑΛΗΣ

Για δυναμική απόδοση

Αυτό το εγχειρίδιο παρέχει πληροφορίες σχετικά με τους τύπους ιμάντων καθώς και οδηγίες σχετικά με την τοποθέτηση & συντήρηση αυτών.

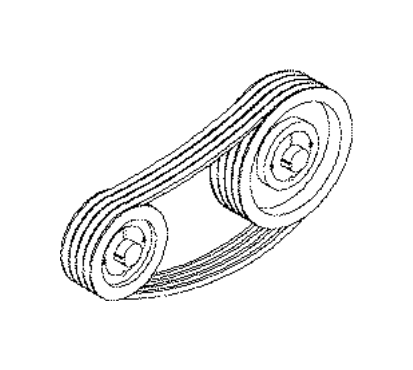
Installation and Maintenance Instructions

Note: These installation and maintenance instructions apply with appropriate modifications also to OPTIBELT timing belts and ribbed belts. For details see corresponding technical manuals.

Initial installation

V-belts should be installed without using force. Installation using screwdrivers, crowbars etc. causes internal and external damage to the belt. V-belts installed by force may in some instances only work for a few days. Correct installation of the belt saves time and money.

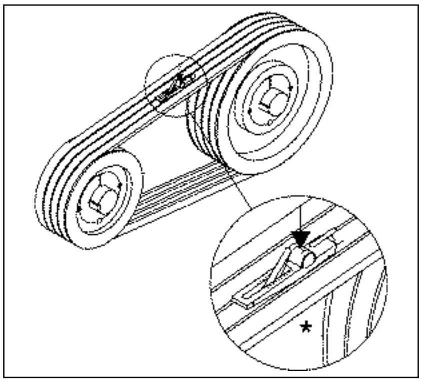
If installation allowance is limited, it may be necessary to fit the belts to the pulleys and then attach them to the shafts.



Belt tension

Belt tension values should follow OPTIBELT recommendations. Align the motor parallel up to the stated belt tension. Carry out several belt revolutions and check static belt tension again. Experience has shown that belt tension needs to be checked again after 0.5 to 4 hours and then corrected, if necessary. For further information on tensioning gauges and how to use them see page 5.

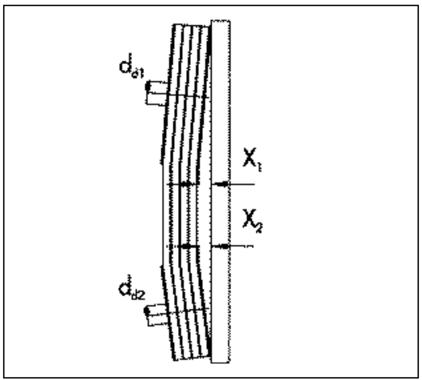
* **Optikrik**



Permissible shaft misalignment

After tightening to the correct initial installation tension, the distances X_1 and X_2 between the two pulleys d_{d1} and d_{d2} and the guide rail at shaft level should be measured. The distances measured should ideally fall below the maximum permissible values for the distance X from the table, depending on the pulley diameters d_d. According to pulley diameter, the interim values for X are to be interpolated.

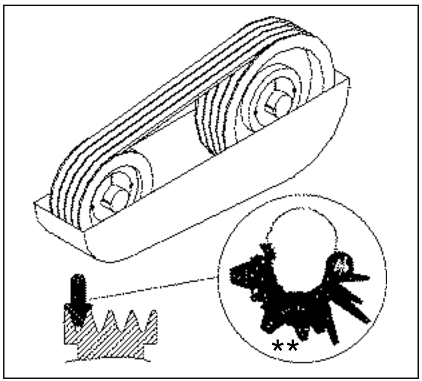
Pulley diameter d_{d1}, d_{d2}	Maximum permissible centre distance X_1, X_2
112 mm	0.5 mm
224 mm	1.0 mm
450 mm	2.0 mm
630 mm	3.0 mm
900 mm	4.0 mm
1100 mm	5.0 mm
1400 mm	6.0 mm
1600 mm	7.0 mm



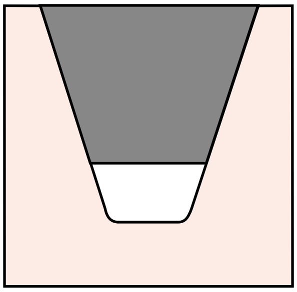
Inspections

We recommend that the drive should be inspected regularly, e.g. after 3 to 6 months. V-grooved pulleys should be checked for wear and tear and overall condition. As an aid, you are advised to use the OPTIBELT section and pulley groove template.

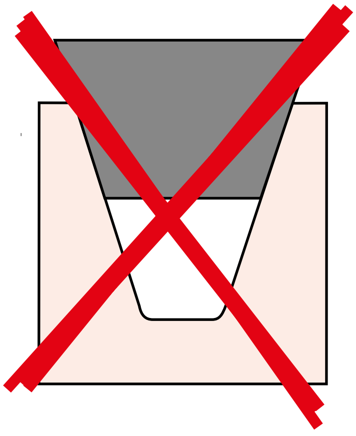
** **section and pulley groove template**



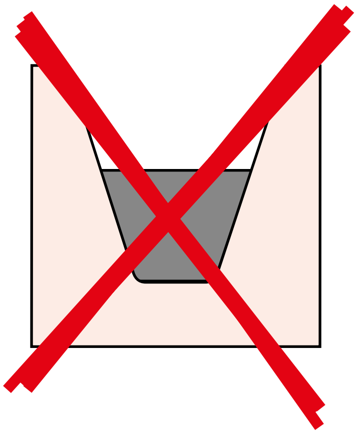
Problem – Cause – Remedy
Sources of Error



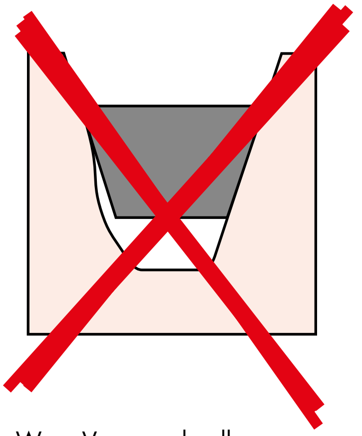
Correct belt arrangement in the V-grooved pulley



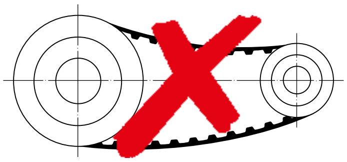
Belt too big/
pulley groove too small



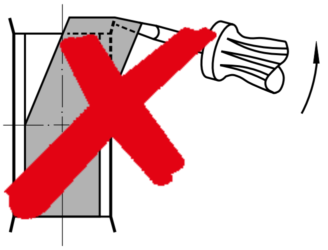
Belt section too small/
pulley section too big



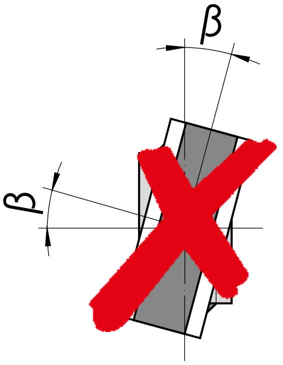
Worn V-grooved pulley



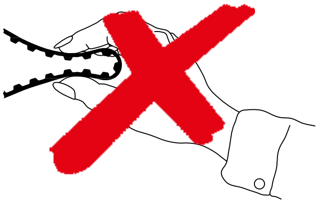
Tension too low



Installation by force



Vertical angle deviation of the shafts



Kinked belt

Aligned pulleys on axially parallel shafts

Axial misalignment of pulleys

Horizontal angle deviation of the shafts

Montage und Wartung
Fitting and maintenance

Um die Vorteile der robusten und langlebigen Keilriemen von ContiTech voll auszunutzen, sollte man einige grundlegende Montage- und Wartungshinweise beachten.
A few fundamental fitting and maintenance tips should be observed in order to make full use of the benefits of ContiTech's robust, durable V-belts.

- Die verwendeten Keilscheiben müssen den aktuellen Normen und dem Keilriemenprofil entsprechen.
- Die Keilscheiben sind fluchtend auszurichten. Nicht fluchtende Keilscheiben begünstigen einen verstärkten Flankenverschleiß und erhöhte Laufgeräusche.
- Die Keilscheiben müssen frei von Grat, Rost und Schmutz sein.
- Das Auflegen der Keilriemen muss zwanglos von Hand erfolgen. Hierzu wird der Achsabstand entsprechend verringert. Ein gewaltsames Aufziehen kann den Riemen zerstören.
- Keilriemenantriebe müssen sorgfältig vorgespannt werden. Die antriebsspezifischen Vorspannungswerte können Sie einfach der ContiSuite Berechnungssoftware entnehmen.
- Nach kurzer Einlaufzeit von etwa 20 Minuten ist die Vorspannung zu kontrollieren und der Keilriemen ggf. nachzuspannen. Bei zu geringer Vorspannung kann die erforderliche Leistung nicht mehr übertragen werden. Zu hohe Vorspannung erhöht die Riemenbelastung und reduziert die Lebensdauer.
- Fällt bei mehrrilligen Antrieben ein Einzelriemen aus, muss immer ein komplett neuer Satz montiert.
- Spannrollen sollen von innen nach außen wirken und den Mindest-Scheibendurchmesser nicht unterschreiten. Von außen nach Innen wirkenden Spannrollen können die Lebensdauer des Zahnriemens reduzieren.

- The V-belt pulleys used must correspond to the current standards and the V-belt section.
- The V-belt pulleys must be properly aligned. Non-aligned V-belt pulleys encourage increased flank wear and running noise.
- The V-belt pulleys must be free of burrs, rust and soiling.
- The belts must be fitted manually without the use of force. For this, the center distance must be correspondingly reduced. Using force when fitting the belt can cause it irreparable damage.
- V-belt drives must be carefully pretensioned. The drive-specific pretension settings can be obtained straightforwardly using the ContiSuite design software tool.
- After a short running-in period of approx. 20 minutes, the pretension must be checked and the V-belt retensioned, if necessary. If the pretension is too low, the required power can no longer be transmitted. Too high a pretension increases the belt load and reduces the belt's service life.
- Always fit a complete new set if an individual belt fails in multi-grooved drives.
- Tensioning pulleys should work from the inside outwards and always meet the minimum pulley diameter. Tensioning pulleys working from the outside inwards can shorten the timing belt's service life.

Technical Information

V-belt causes of premature failure

	Problem								
	Cut Thru on Top (Joined Belts)	Mismatched Belts at Installation	Belts too Short at Installation	Belts too Long at Installation	Excessive Vibration	Excessive Stretch	Belt Squeal	Hardening & Premature Cracking	Belts Turn Over
Possible Causes									
Excessive Oil									■
Exposure to Elements								■	
Pried Over Sheaves									
Contact with Obstruction									
Insufficient Tension					■		■	■	
Stalled Drive Sheaves									
Constant Slippage									
Rough Sheaves									
Substandard Sheaves									
Excessive Tension									
Shock Load									
Foreign Material									
Excessive Dust									
Drive Misalignment									■
Worn Sheaves	■	■							■
Excessive Vibration									■
High Ambient Temperature								■	■
Damaged Tensile Member					■				
Incorrect Belts			■	■					
Incorrect Drive Set-Up			■	■					
Insufficient Take-Up			■	■					
Improper Matching						■			
Mixed Old and New Belts						■			
Non-Parallel Shafts						■			
Different Manufacturers		■				■			
Belt/Pulley, Incompatible	■					■			
Corrective Action									
Lubricate properly									
Clean sheaves and belt									
Replace belts		■			■				
Provide protection									
Install properly					■				
Check for belt length									
Remove obstruction									
Tension properly					■	■	■	■	■
Free sheaves									
Replace sheaves	■	■				■			■
File smooth									
Redesign drive									
Operate properly									
Align drive		■							■
Provide ventilation								■	
Check for proper belt			■	■		■			
Check machinery			■	■					
Use only new belts		■							
Use single source		■							

continued on page 161

Technical Information

V-belt causes of premature failure

Problem (continued)

	Broken Belts	Side Split	Ply Separation	Uneven Envelope Wear	Envelope Wear	Spin Burn	Gouges	Weathering or "Craze" Cracks	Loose Cover and Swell
Possible Causes									
Excessive Oil									■
Exposure to Elements								■	
Pried Over Sheaves	■						■		
Contact with Obstruction							■		
Insufficient Tension						■			
Stalled Drive Sheaves						■			
Constant Slippage					■				
Rough Sheaves				■					
Substandard Sheaves		■	■						
Excessive Tension			■						
Shock Load	■								
Foreign Material	■								
Excessive Dust					■				
Drive Misalignment				■					
Worn Sheaves				■					
Excessive Vibration									
High Ambient Temperature									
Damaged Tensile Member	■								
Incorrect Belts									
Incorrect Drive Set-Up									
Insufficient Take-Up									
Improper Matching									
Mixed Old and New Belts									
Non-Parallel Shafts				■					
Different Manufacturers									
Belt/Pulley, Incompatible									
Corrective Action									
Lubricate properly						■			■
Clean sheaves and belt									■
Replace belts								■	
Provide protection	■				■			■	
Install properly	■		■				■		
Check for belt length							■		
Remove obstruction							■		
Tension properly					■	■			
Free sheaves						■			
Replace sheaves			■	■					
File smooth				■					
Redesign drive		■							
Operate properly	■								
Align drive				■	■				
Provide ventilation									
Check for proper belt	■								
Check machinery									
Use only new belts									
Use single source									

Belt Storage

Methods of storage

V-belts

A common method of storing belts is to hang them on pegs or pin racks. Very long belts stored this way should use sufficiently large pins or crescent-shaped "saddles" to prevent their weight from causing distortion. Long V-belts may be "coiled" in loops for easy distortion-free storage. The following table is a guide to the maximum number of coils for extended storage time:

V-Belts

Belt Cross Section	Belt Length (in.)	Belt Length (mm)	# of Coils*	# of Loops
3L, 4L, A, AX, AA	Under 60	Under 1500	0	1
5L, B, BX, 3V	60 up to 120	1500 up to 3000	1	3
9R, 13R, 13C, 13CX, 13D	120 up to 180	3000 up to 4600	2	5
16R, 16C, 16CX, 9N	180 and over	4600 and over	3	7
BB, C, CX	Under 75	Under 1900	0	1
5V	75 up to 144	1900 up to 3700	1	3
16D, 22C, 22CX	144 up to 240	3700 up to 6000	2	5
15N	240 and over	6000 and over	3	7
	Under 120	Under 3000	0	1
	120 up to 240	3000 up to 6100	1	3
CC, D	240 up to 330	6100 up to 8400	2	5
22D, 32C	330 up to 420	8400 up to 10,600	3	7
	420 and over	10,600 and over	4	9
	Under 180	Under 4600	0	1
	80 up to 270	4600 up to 6900	1	3
8V (25N)	270 up to 390	6900 up to 9900	2	5
	390 up to 480	9900 up to 12,200	3	7
	480 and over	12,200 and over	4	9

*One coil results in three loops, two coils result in five loops, etc.

Oil and Chemical Resistance of Power Transmission Belts

In general, the presence of oil or chemicals in contact with any belt drive system can materially affect the life span and operational characteristics of the system. The concentration of the chemical or oil involved, length and type of exposure, choice of belt type used and environmental conditions, such as heat and humidity, all contribute to the rate and degree of effect on the performance and deterioration.

Two effects may be noted when belts are exposed to oil and/or chemicals. The most obvious is a swelling or increase in dimensions of the cross-section so that they no longer fit the pulley or sheave groove properly. Less apparent at casual observation, is the deterioration of the original physical properties, which includes adhesion between the belt components. If the degree of swelling and/or loss of physical properties is significant, the life of the belt will be substantially shortened.

The above effects may be brought about by a large variety of chemicals, notably oils, acids and solvents.

No one synthetic rubber is resistant to all of these. Some compounds may be excellent for one chemical, but poor for another and only adequate for still another.

Because of this, all Continental ContiTech stock belts are constructed to be reasonably oil and chemical resistant. The nature of the compounds and/or belt construction may minimize swelling and deterioration. Occasional splattering by oils and greases does not usually adversely affect standard belts. The automotive fan belt is a typical example. In addition, there are a great number of chemicals, such as gasoline, which swell rubber or extract ingredients from the belt's rubber compounds. These may cause embrittlement, cracking or swelling of the belt, which results in deterioration of performance.

If the drive is subjected to the accumulation of a considerable amount of oil and grease on the belt, it may preclude the use of a V-belt or a V-ribbed belt. Synchronous belts are not substantially affected by the loss of friction coefficient and may be capable of limited operation under these conditions.

As can be seen from the above, there are many variables; however, the following general guidelines might be of use in selecting a belt drive system subjected to a chemical environment.

1. Prevent the accumulation of contaminants.

2. If the belts are to be subjected to only an occasional contamination contact, a standard construction V- or synchronous belt can be used.

3. If the belts are expected to give long, trouble-free operation on an industrial drive and they are in contact with oil or exposed to an atmosphere laden with chemicals or solvents, consult the manufacturer for recommendations.

Belt Storage

Methods of storage

Joined V-belts, Synchronous belts, V-ribbed belts

Like V-belts, these belts may be stored on pins or saddles with precautions taken to avoid distortion. However, belts of these types, up to approximately 120 inches (3,000mm), are normally shipped in “nested” configuration and it is recommended that the belts be stored in this manner as well. Nests are formed by laying a belt on its side on a flat surface and placing as many belts inside the first belt as possible without undue force. When the nests are tight and stacked with each rotated 180° from the one below, they may be stacked without damage.

Belts of these types over approximately 120 inches (3,000mm), may be “rolled up” and tied for shipment. These rolls may be stacked for easy storage. Care should be taken to avoid small radii, which could damage the belts.

Variable speed belts

A common method of storing belts is to hang them on pegs or Variable Speed belts are more sensitive to distortion than most other belts and it is not recommended that these belts be hung from pins or racks. They should be stored on shelves. A common method for packaging for shipment is the use of a “sleeve” slipped over the belt. Variable Speed belts should be stored in these sleeves and may conveniently be stacked on shelves with the aid of the sleeves.

Effects of storage

The quality of belts has not been found to change significantly within seven years of proper storage at temperatures less than 85°F (30°C) and relative humidity below 70%. Also there must be no exposure to direct sunlight.

If the storage temperature is increased beyond 85˚F (30°C), then the storage limit for normal service expectancy should be reduced. From a base of 7 years at 85°F (30°C), the storage limit should be reduced by one-half for each 15˚F (8°C) increase in temperature. Under no circumstances should belts be exposed to storage temperatures above 115°F (46°C).

With a significant increase in humidity, it is possible for fungus or mildew to form on stored belts. This does not appear to cause serious belt damage, but should be avoided if possible.

Equipment using belts is sometimes stored for prolonged periods (six months or more) before it is put in service or during other periods when it is idle. It is recommended that the tension of the belts be relaxed during such period and that equipment storage conditions should be consistent with the guidelines for belt storage. If this is not possible, the belts should be removed and stored separately.

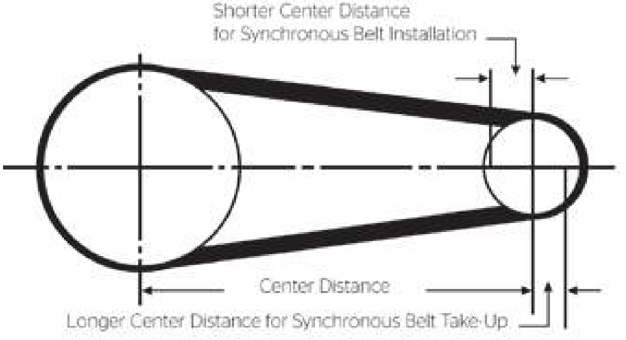
Technical Information

Belt installation and tensioning

OBJECTIVE: Continental ContiTech Synchronous timing belts must be installed and tensioned properly to ensure optimum performance. Sprocket alignment must be preserved while tensioning the drive.

Before beginning, inspect the belt for damage and verify that the sprockets are properly mounted. Refer to sprocket and bushing manufacturer installation procedure. Belts should never be crimped or bent to a diameter less than the minimum sprocket diameter, approximately 2.5 inches for 8mm belts and 5 inches for 14mm belts.

1. Shorten the center distance or release the tensioning idler to install the belt. Do not pry the belt onto the sprocket. Refer to the following Center Distance Allowance tables for required center distance adjustment.



Apply the following center distance allowances for the Hawk Pd® and Falcon Pd.® A center distance adjustment or decrease in center distance, is necessary to install a belt. In addition, an increase in center distance will be necessary for proper tensioning. If you install a belt together with sprockets, allow the following decrease in center distance for installation and an increase in center distance for tensioning.

	Allowance (decrease) for Installation	**Allowance (increase) for Take-Up**
Pitch Length Range (mm)	**8m, 14m Belts (mm/in.)**	**8m, 14m Belts (mm/in.)**
Less than 1525	2.5/0.1	2.5/0.1
1525-3050	5.0/0.2	5.0/0.2
Greater than 3050	7.5/0.3	7.5/0.3

If you install a belt over one flanged sprocket and one unflanged sprocket with the sprockets already installed on the drive, allow the following decrease in center distance for installation and increase in center distance for tensioning.

	Allowance (decrease) for Installation		**Allowance (increase) for Take-Up**
Pitch Length Range (mm)	**8m Belts (mm/in.)**	**14m Belts (mm/in.)**	**8m, 14m Belts (mm/in.)**
Less than 1525	22.5/0.9	36.5/1.4	2.5/0.1
1525-3050	25.0/1.0	39.0/1.5	5.0/0.2
Greater than 3050	27.5/1.1	41.5/1.6	7.5/0.3

If you install the belt over two flanged sprockets that are already installed on the drive, allow the following decrease in center distance for installation and increase in center distance for tensioning.

	Allowance (decrease) for Installation		**Allowance (increase) for Take-Up**
Pitch Length Range (mm)	**8m Belts (mm/in.)**	**14m Belts (mm/in.)**	**8m, 14m Belts (mm/in.)**
Less than 1525	34.5/1.4	59.2/2.3	2.5/0.1
1525-3050	37.0/1.5	62.0/2.4	5.0/0.2
Greater than 3050	39.5/1.6	64.5/2.5	7.5/0.3

Consider the following center distance allowances when installing SilentSync® sprockets. Since flanges are not necessary on SilentSync® drives, only one table of center distance allowances is provided.

Pitch Length Range (mm)	Allowance (decrease) for Installation 8m Belts (mm/in.)	Allowance (decrease) for Installation 14m Belts (mm/in.)	Allowance (increase) for Take-Up 8m, 14m Belts (mm/in.)
Less than 1525	10.1/0.4	15.2/0.6	2.5/0.1
Greater than 1525	15.2/0.6	17.8/0.7	5.0/0.2

2. Place the belt on each sprocket and ensure proper engagement between the sprocket and belt teeth.

3. Lengthen the center distance or adjust the tensioning idler to remove any belt slack.

4. Using a tape measure, measure the span length of the drive. Refer to dimension "P" in the diagram. The span length can be calculated using the formula at the right.

5. Place a straightedge or reference line across the top of the belt.

6. Determine the proper deflection force to tension the belt. Deflection forces are given in the following tables. Deflection forces are also given on the output of the MaximizerPro™ computer drive analysis.

a. If using a tension gauge, the deflection scale is calibrated in inches of span length. Check the force required to deflect the belt the proper amount. There is an O-ring to help record the force. If the measured force is less than the required deflection force, lengthen the center distance. If the measured force is greater than the required deflection force, shorten the center distance. See chart on page 157 for deflection values and tension gauges available.

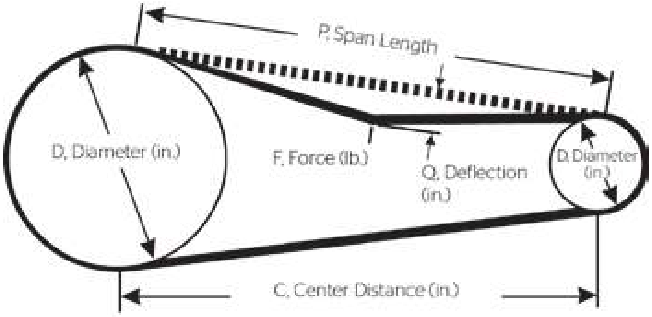
b. If using other means to apply force to the belt, adjust the center distance so that the belt is deflected 1⁄64 per inch of span length when the proper force is applied. See chart on page 158 regarding TensionRite® Belt Frequency Meter which calculates belt tension by measuring span vibrations.

7. After the belt is properly tensioned, lock down the center distance adjustments and recheck the sprocket alignment.

8. If possible, run the drive for approximately 5 minutes with or without load. Stop the drive and lock out the power source and examine alignment, capscrew torque and belt tension. Adjust the center distance to increase the belt tension to the "New" value in the Deflection Principle table below. Lock down the drive adjustments and recheck tension.

9. Recheck the belt tension, alignment and capscrew torque after 8 hours of operation to ensure the drive has not shifted.

Deflection Principle



F = Deflection Force
q = Deflection, 1⁄64 in. per in. of span length
C = Center Distance
D = Large Sprocket Pitch Diameter
d = Small Sprocket Pitch Diameter
P = Span Length

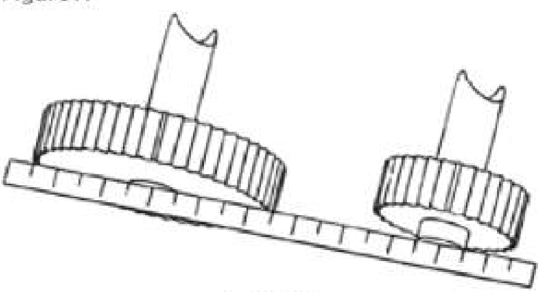
$$P = \sqrt{C_2 - \left(\frac{D-d}{2}\right)^2}$$

Technical Information

Drive alignment

Synchronous belts are very sensitive to misalignment. The tension carrying member has a high tensile strength and resistance to elongation, resulting in a very stable belt product. Any misalignment will lead to inconsistent belt wear, uneven load distribution and premature tensile failure. In general, synchronous drives should not be used where misalignment is a problem. Misalignment should be limited to 1⁄4 degree or 1⁄16 inch per foot of center distance.

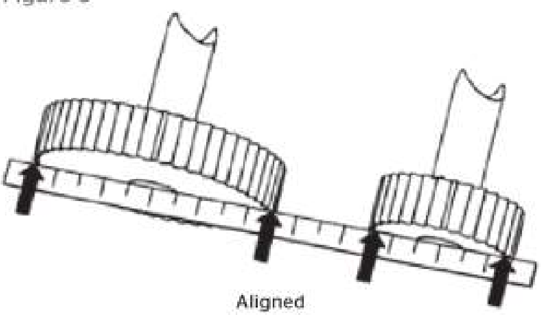
Figure A



Misaligned

Any degree of misalignment will reduce belt life and cause edge wear. Therefore, a straightedge should be used to check proper alignment verifying that sprockets and shafts are parallel, as in Figure C.

Figure C

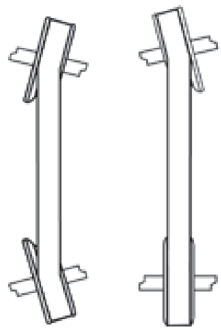


Aligned

Misalignment, at times, may cause tracking problems. Although some tracking is normal and will not affect belt performance, it may be caused by poorly aligned sprockets. Flanges may control a tracking problem. Considering a two-sprocket drive, belt contact on a single flange is acceptable. Belt contact with the opposite flanges of two sprockets should be avoided.

With parallel shafts, misalignment occurs when there is an offset between the sprocket faces as in Figure A. Misalignment also occurs when the shafts are not parallel as in Figure B.

Figure B

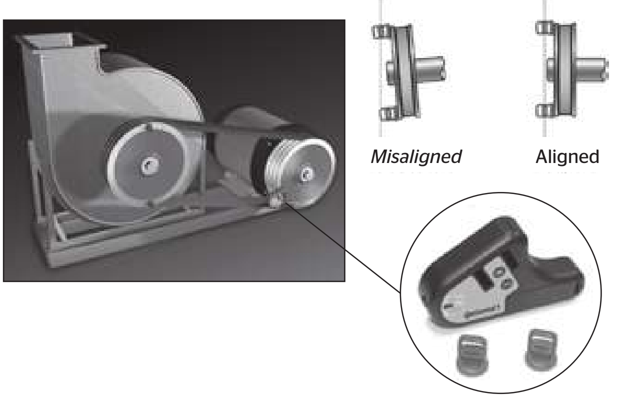


Correct alignment

A straightedge should touch the sprocket at the four points indicated. Both front and back alignments should be checked.

Laser alignment tool

Continental ContiTech Laser Alignment Tool provides an alternative to checking alignment with a straightedge. Each laser alignment tool comes with a rugged carrying case and detailed instructions to get you started with the quickest, easiest and most versatile alignment tool on the market today.



Misalignment can also be attributed to the improper installation of a bushing or loose drive framework. Refer to sprocket manufacture guidelines for proper bushing installation. Secure motor and framework to eliminate vibration on center-to-center fluctuations.

Technical Information

Synchronous belt causes of premature failure

Types of Failure

Possible Cause of Failure	Excessive Edge Wear	Excessive Tooth Wear	Uneven Tooth Wear	Apparent Belt Stretch	Cracks in Backing	Tooth Shear	Tensile Failure	Excessive Drive Noise	Tooth Skipping (Ratcheting)	Belt Tracking	Excessive Sprocket Wear	Excessive Drive Vibration
Belt Hitting Obstruction	Primary Cause	Could Cause But Not Likely	Possible Cause					Could Cause But Not Likely				Could Cause But Not Likely
Excessive Load		Possible Cause				Primary Cause	Primary Cause					
Belt Overtensioned		Could Cause But Not Likely					Possible Cause	Possible Cause			Could Cause But Not Likely	Could Cause But Not Likely
Belt Undertensioned		Primary Cause	Possible Cause	Could Cause But Not Likely				Possible Cause	Primary Cause			Could Cause But Not Likely
Rough or Damaged Sprocket		Possible Cause	Possible Cause									Could Cause But Not Likely
Misalignment		Primary Cause	Primary Cause			Possible Cause	Primary Cause			Primary Cause	Could Cause But Not Likely	
Worn Sprocket		Possible Cause	Possible Cause			Could Cause But Not Likely			Could Cause But Not Likely			
Sprocket Out of Tolerance		Could Cause But Not Likely	Could Cause But Not Likely			Could Cause But Not Likely			Could Cause But Not Likely	Could Cause But Not Likely	Could Cause But Not Likely	Could Cause But Not Likely
Soft Sprocket Material											Primary Cause	
Debris in Sprocket or Drive		Possible Cause	Could Cause But Not Likely			Could Cause But Not Likely	Possible Cause		Possible Cause	Possible Cause	Primary Cause	Possible Cause
Center Distance Changed		Could Cause But Not Likely		Primary Cause					Possible Cause			
Weak Drive Structure		Could Cause But Not Likely		Primary Cause				Could Cause But Not Likely	Possible Cause	Possible Cause		Primary Cause
Excessive Low Temperature					Primary Cause	Could Cause But Not Likely						
Excessive High Temperature				Could Cause But Not Likely	Primary Cause	Could Cause But Not Likely						Could Cause But Not Likely
Exposure to Oil, Solvents, Chemicals				Possible Cause	Possible Cause	Could Cause But Not Likely	Could Cause But Not Likely		Could Cause But Not Likely		Could Cause But Not Likely	
Sprocket Diameter Sub Minimum				Could Cause But Not Likely	Primary Cause		Possible Cause					
Back Side Idler					Possible Cause							
Shock Loading					Possible Cause	Primary Cause	Possible Cause		Possible Cause			
Less than 6 Teeth in Mesh		Could Cause But Not Likely	Could Cause But Not Likely			Possible Cause						
Excessive Sprocket Runout							Could Cause But Not Likely					Possible Cause
Damage Due to Handling							Primary Cause				Could Cause But Not Likely	
Vibrating Bearings/ Mountings												Possible Cause
Center Distance Greater than 8x Small Sprocket Diameter										Possible Cause		
Sprocket Not Properly Balanced								Possible Cause				Primary Cause
Belt/Sprocket Incompatible		Possible Cause				Possible Cause		Possible Cause			Possible Cause	Possible Cause

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Legend

Primary Cause Possible Cause Could Cause But Not Likely

Technical Information

Synchronous belt causes of premature failure

Types of Failure (continued)

Corrective Action	Excessive Edge Wear	Excessive Tooth Wear	Uneven Tooth Wear	Apparent Belt Stretch	Cracks in Backing	Tooth Shear	Tensile Failure	Excessive Drive Noise	Tooth Skipping (Ratcheting)	Belt Tracking	Excessive Sprocket Wear	Excessive Drive Vibration
Remove obstruction or use idler to reroute belt	Primary Cause	Could Cause But Not Likely	Possible Cause					Could Cause But Not Likely				Could Cause But Not Likely
Redesign drive		Possible Cause				Primary Cause	Primary Cause					
Use tensioning gauge to set proper tension		Could Cause But Not Likely					Possible Cause	Possible Cause			Could Cause But Not Likely	Could Cause But Not Likely
Use tensioning gauge to set proper tension		Primary Cause	Possible Cause	Could Cause But Not Likely				Possible Cause	Primary Cause			Could Cause But Not Likely
Replace sprocket		Possible Cause	Possible Cause									Could Cause But Not Likely
Align shafts and sprockets		Primary Cause	Primary Cause			Possible Cause	Primary Cause			Primary Cause	Could Cause But Not Likely	
Replace sprocket		Possible Cause	Possible Cause			Could Cause But Not Likely			Could Cause But Not Likely			
Replace sprocket, never attempt to remachine		Could Cause But Not Likely	Could Cause But Not Likely			Could Cause But Not Likely			Could Cause But Not Likely	Could Cause But Not Likely	Could Cause But Not Likely	Could Cause But Not Likely
Use harder sprocket material											Primary Cause	
Shield drive		Possible Cause	Could Cause But Not Likely			Could Cause But Not Likely	Possible Cause		Possible Cause	Possible Cause	Primary Cause	Possible Cause
Check lock down bolts on motors and shafts		Could Cause But Not Likely		Primary Cause					Possible Cause			
Reinforce drive structure		Could Cause But Not Likely		Primary Cause				Could Cause But Not Likely	Possible Cause	Possible Cause		Primary Cause
Moderate temperature, especially at start-up					Primary Cause	Could Cause But Not Likely						
Moderate temperature, shield drive				Could Cause But Not Likely	Primary Cause	Could Cause But Not Likely						Could Cause But Not Likely
Shield drive, eliminate chemicals				Possible Cause	Possible Cause	Could Cause But Not Likely	Could Cause But Not Likely		Could Cause But Not Likely		Could Cause But Not Likely	
Redesign drive to increased sprocket diameters				Could Cause But Not Likely	Primary Cause		Possible Cause					
Redesign to reduce wrap on backside idler					Possible Cause							
Eliminate shock loading or redesign drive to handle it					Possible Cause	Primary Cause	Possible Cause		Possible Cause			
Increase wrap on sprocket		Could Cause But Not Likely	Could Cause But Not Likely			Possible Cause						
Replace sprocket							Could Cause But Not Likely					Possible Cause
Replace product, do not crimp belt or drop sprockets							Primary Cause				Could Cause But Not Likely	
Replace bearings or reinforce mountings												Possible Cause
Alignment is critical										Possible Cause		
Check sprocket balance								Possible Cause				Primary Cause
Check for proper belt		Possible Cause				Possible Cause		Possible Cause			Possible Cause	Possible Cause

Legend

Primary Cause   Possible Cause   Could Cause But Not Likely

Static Conductive Belts

Under certain operating conditions, a belt drive may generate static electricity. This poses a risk with belt drives used in the presence of potentially explosive gases, liquids, powders, dusts, etc., where the possibility of static sparks must be kept to a minimum. Static discharge can also interfere with sensitive electronic circuitry, radios and controls. Belts can be manufactured with materials that facilitate a grounding path for static electricity. It is common in the industry to refer to such belts as "static conductive." It is important to note that all components of the drive must be conductive to establish a clear grounding path to dissipate any static charge.

For non-synchronous (friction drive) power transmission belting, Continental ContiTech references International Standards Organization standard ISO-1813, which describes a test procedure and fixture where electrodes are machined to match the specific belt cross section profile. The maximum allowable resistance, measured with an applied potential of 500 volts, is calculated from the formula shown below and tabulated in the standard.

For synchronous power transmission belting, the reference document is ISO standard 9563, which describes a test procedure and fixture specific to synchronous belting, where the electrodes are machined to match the specific tooth profile of the belt. The maximum allowable resistance, measured with an applied potential of 500 volts, is calculated as follows:

$$R = \frac{6x10^5 L}{w}$$

Where
R = resistance in ohms
L = distance between electrodes
w = width of the belt

Drive conditions and service variables in combination with time in operation can result in a loss of static conductivity. It is recommended that a conductivity check be added to drive preventative maintenance programs where belt static conductivity is a requirement.

επισκεφθείτε μας

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Σάββατο 09.30 – 11.30
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