Gates CARBON DRIVE™

MODULE OWNER'S MANUAL

CONTENTS

MY23 REV 8.2022 | GATESCARBONDRIVE.COM

MODULE

OWNER'S MANUAL

This manual explains proper belt handling, contains information about proper care and tensioning as well as warranty information.

MODULE

HISTORY

Gates Corporation has been a global leader in power transmission and belt drive technologies since 1911, this module explains how Gates Carbon Drive evolved.

MODULE

PRODUCT LINES

Comparisons of our systems, their ideal applications, and guidance in choosing the right system for you.

MODULE

APPLICATIONS

A quick look at the hub and mid-motors, gearboxes, internal gear hubs and cranksets we support.

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COMPONENTS

Our current product listing. Includes belts, front and rear sprockets.

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ASSEMBLIES

Technical information for eBike integration and specification of Gates cranksets.

MODULE

TECHNICAL RESOURCES

Frame design details, including dropout and frame stiffness and alignment requirements, assembly tolerances, online resources, available tools, troubleshooting, and a glossary.

LESS NOISE.
LESS MAINTENANCE.
A WHOLE LOT MORE FUN.

We are thrilled and honored you have chosen a bicycle equipped with Gates Carbon Drive™. We hope you enjoy the difference Clean, Quiet, Smooth, and Strong will mean for your ride. No grease. No rust.

RESOURCES

BELT HANDLING | **TENSION** | **ALIGNMENT** | **WARRANTY**

ISO REQUIREMENTS

Gates Carbon Drive products meet or exceed the standards set forth in the applicable requirements in ISO 4210-2 and ISO 4210-8. While individual Carbon Drive components sold by Gates meet or exceed these ISO requirements, it is the sole responsibility of the bicycle original equipment manufacturer (OEM) to configure the Gates Carbon Drive components in a way that meets or exceeds the ISO requirements for their particular bicycle model, especially regarding protective devices.

Note: All dimensions in millimeters unless otherwise noted.

GENERAL SAFETY

WARNING

Read this information before using, replacing, or installing the Gates Carbon Drive belt. Improper installation, adjustment, alteration, service, or maintenance can result in property damage and serious bodily injury, including death. Refer to this manual for assistance or consult with a cycling professional for further information. **www.GatesCarbonDrive.com/OwnersManual**

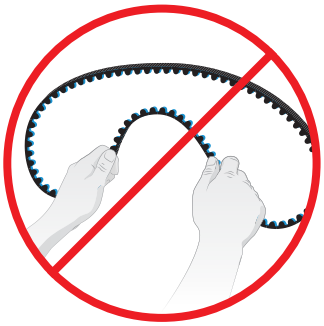
HANDLING THE BELT

Gates Carbon Drive™ belts are extremely durable and offer long life when properly handled. However, caution must be used before and during installation to avoid damaging the carbon tensile cords that make up the backbone of the belt's strength. Excessive bending and twisting creates crimps which can lead to belt breakage under high load.

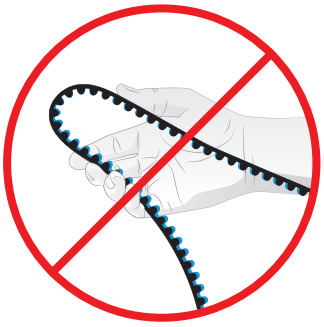
Do not twist, backbend, crimp, invert, bundle or zip tie the belt. Do not use the belt as a strap wrench or chainwhip. Do not lubricate, pry on, or roll on the belt.

GATES REQUIRES A HAND BRAKE AS PART OF THE BRAKING SYSTEM.

DO NOT TWIST



DO NOT BACKBEND

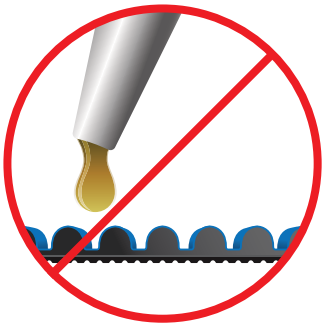


DO NOT CRIMP

DO NOT INVERT

DO NOT ZIP TIE

DO NOT USE BELT AS A SPROCKET REMOVAL TOOL



DO NOT LUBRICATE

DO NOT PRY ON

DO NOT ROLL ON

CARE FOR YOUR CARBON DRIVE

- Wash with water to remove debris
- Lubrication not required
- If your bike is equipped with a snubber, the snubber must not be in contact with the belt
- This is a drive system– it is imperative to keep bodily parts and clothing away from the drive while in motion
- Acceptable temperature range for belts:

CDX

-53˚C TO +85˚C
-65˚F TO +185˚F

CDC

-35˚C TO +60˚C
-31˚F TO +140˚F

CDN/ST

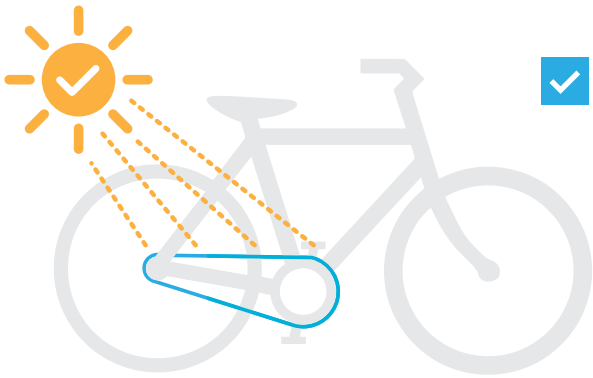
MY23 AND NEWER BICYCLES

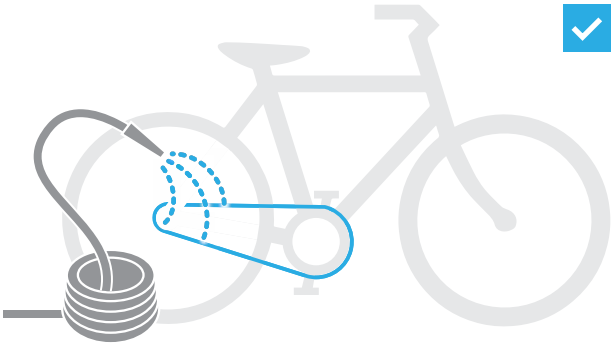
-35˚C TO +60˚C
-31˚F TO +140˚F

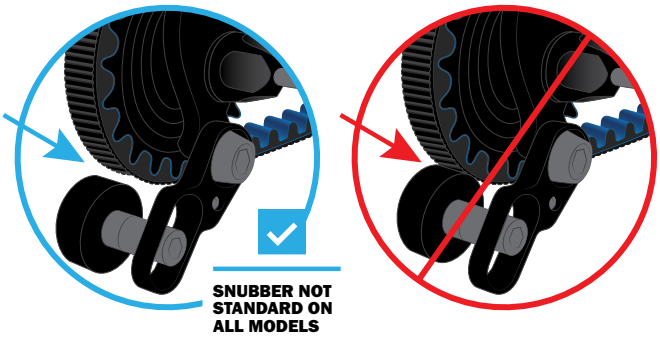
MY22 AND OLDER BICYCLES

-20˚C TO +60˚C
-4˚F TO +140˚F

CDN/ST belts produced for MY22 and prior bicycles have a textured backing; MY23 and beyond CDN/ST belts are smooth.







PROPER TENSION AND DRIVE ALIGNMENT ARE KEY TO OPTIMAL PERFORMANCE

- Lack of belt tension can lead to "skipping". Too much tension can damage other components and increase the wear of your Carbon Drive System
- Signs of a misaligned drive include, but are not limited to, noise, premature belt or sprocket wear, belt walk-off. Additional information is listed is this module. You can also contact us directly via email at **CarbonDrive@Gates.com**

DANGER

Use Caution.
Although clean of grease, belt drives can still catch pants, skirts or loose clothing. Installation of a belt guard is recommended.

WHAT IS GATES CARBON DRIVE?

THE TECHNOLOGY BEHIND GATES CARBON DRIVE SYSTEM is rooted in high horsepower motorcycles and dragsters. Now, this high performance technology has been perfected for a wide variety of bicycles. At the core of the drive is the Carbon Drive belt. Custom made, this 11mm pitch, carbon-fiber belt is a strong and efficient replacement to a traditional bike chain. The drive is completed with our innovative sprocket designs and your choice of internally-geared or single-speed hub. The patented Gates Carbon Drive system gives you a longer-lasting, lower-maintenance drive, and most importantly, an unbelievably awesome ride.

CDX
CENTERTRACK BELT

POLYURETHANE COMPOUND
CARBON UHD TENSILE CORDS
BLACK BELT WITH BLUE OR BLACK TOOTH FACE

CDC
CENTERTRACK BELT

NEXT GENERATION ETHYLENE ELASTOMER
CARBON HD TENSILE CORDS
BLACK BELT WITH BLACK TOOTH FACE

CLEAN

QUIET

SMOOTH

STRONG

CDN
CENTERTRACK BELT

NEXT GENERATION ETHYLENE ELASTOMER
CARBON TENSILE CORDS
BLACK BELT WITH BLACK TOOTH FACE

ST
SIDETRACK BELT

NEXT GENERATION ETHYLENE ELASTOMER
CARBON TENSILE CORDS
BLACK BELT WITH BLACK TOOTH FACE
NO CENTERTRACK

PROPER TENSION IS KEY

Proper belt tension is essential for optimum operation of the Gates Carbon Drive System. Lack of belt tension can lead to tooth jump or skipping, potentially causing damage to the belt when the teeth of the belt slide over the teeth of the rear sprocket. Too much tension can damage the bearings within the rear hub, can cause the system to drag, and can increase the wear of your drive system.

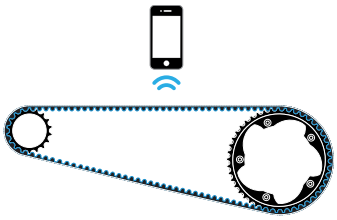
Tensioning procedures vary depending on the bike. Common types of tensioning systems include sliding or pivoting dropouts and eccentric bottom brackets. *Note – correct alignment of the belt has to be maintained as you adjust tension.*

For shops and consumers, there are two primary methods for measuring tension on the Gates Carbon Drive system: physical force using the Gates Carbon Drive Krikit Gauge or Eco Tension Tester, and sonic frequency measurements using the Gates Carbon Drive Mobile App. For each of these, the tension may vary a little along the belt, so you should repeat this procedure several times. Rotate the cranks a quarter turn after each measurement and measure again.

The tools only measure tension, they do not specify a needed tension. Refer to the chart below for the correct tension range recommendation for your Gates Carbon Drive setup.

GATES CARBON DRIVE MOBILE APPS

Belt tension can also be measured with the Gates Carbon Drive Mobile Apps, offered on both iPhone and Android. These apps can measure the belt tension in the form of natural frequency (Hz) of the belt span. Operating instructions are provided within each app. Basic operating instructions are to open the app, make sure the microphone is on, and then hold the phone over the top of the belt in the middle of the span – be sure the phone's microphone is facing the belt. Pluck the belt so that it vibrates similar to a guitar string. The app will convert the sound into the primary frequency of the belt. Rotate the crank to move the belt about a ¼ turn, and repeat the measurement process. Do this for at least one full revolution of the belt. Compare your belt's frequency to the chart (in the app) to see if you need to adjust the tension. The Carbon Drive app works best in a quiet environment.



TENSION REQUIREMENTS

TENSION	35 Hz 28 lbs 13 kg	40 Hz 32 lbs 15 kg	45 Hz 35 lbs 16 kg	50 Hz 40 lbs 18 kg	55 Hz 43 lbs 19 kg	60 Hz 45 lbs 20 kg	65 Hz 48 lbs 22 kg
Internal Gear Hub: Mid-Motor eBike System							
Internal Gear Hub: Pedal Bike, Hub Motor eBike							
Non-Gear Hub: MTB, Gearbox, Tandem, Cargo, Single-Speed							

◉ Indicates recommended tension setting.

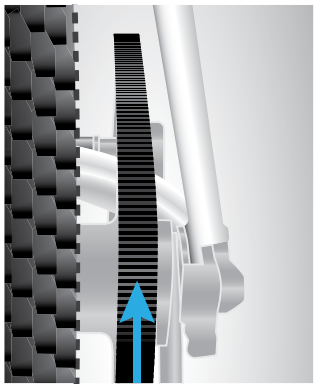
Acceptable tension range; tension may need to be adjusted within this range, but should never be set lower than the minimum range provided

Tension higher than the recommended range may negatively affect shifting performance, drivetrain bearing life, and system efficiency

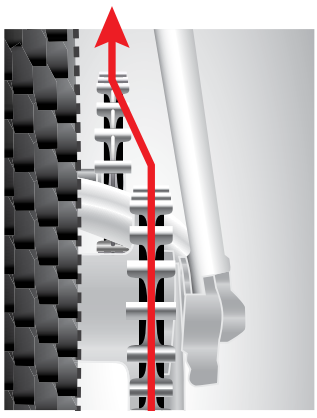
Tension should never be lower than minimum tension, as tooth jump and reduced belt life are possible

PROPER ALIGNMENT

Alignment is critical, and depending on the particular bike and setup, spacers may be used to ensure proper alignment. Sprockets that are out of alignment can cause noise, wear, or belt walk-off. Belt alignment refers to the parallel (side to side) and angular (toe in – toe out) alignment of the belt between the front and rear sprocket positions. Proper alignment is critical in order to maintain proper system performance.

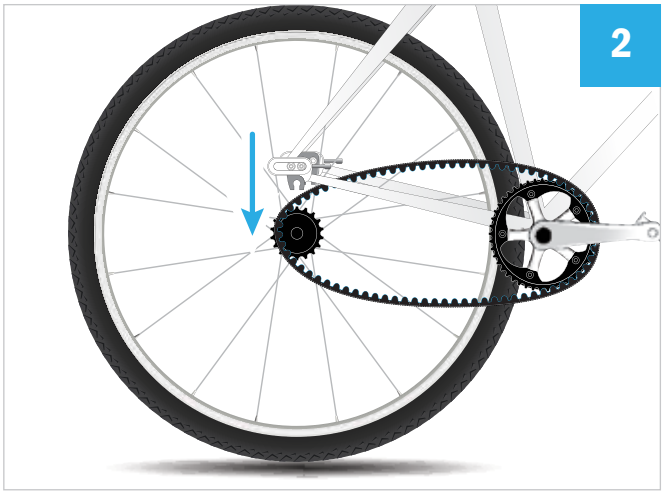


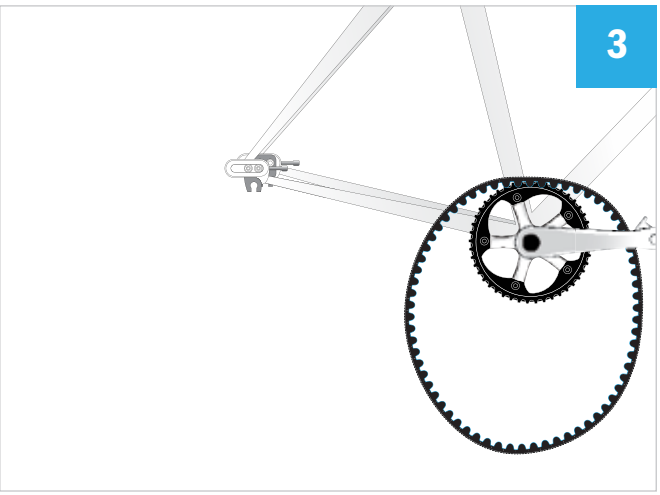
PROPER ALIGNMENT

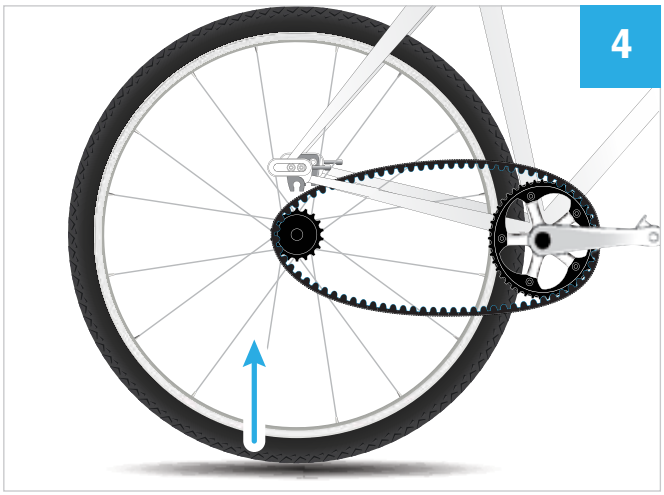


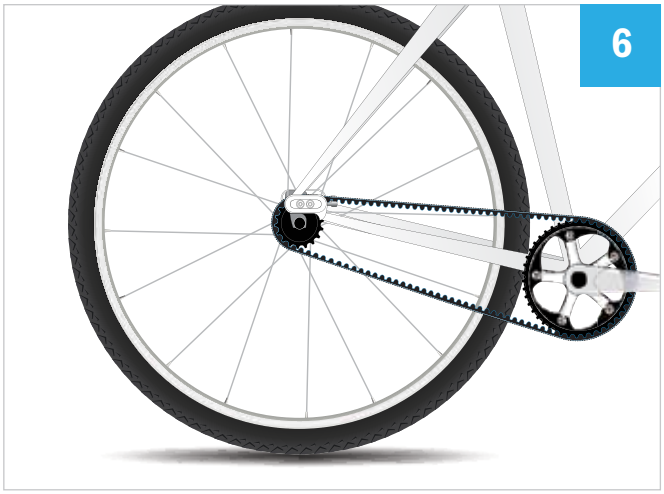
SPROCKETS ARE NOT ALIGNED

RECOMMENDATION: RELEASE BELT TENSION BEFORE REMOVING AXLE FROM DROPOUT





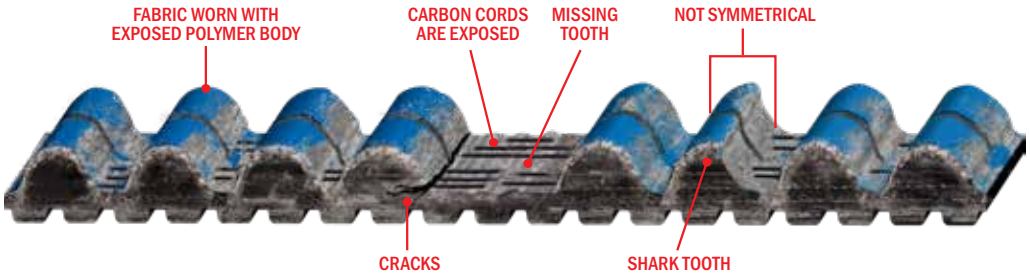




REPLACE WHEN WORN

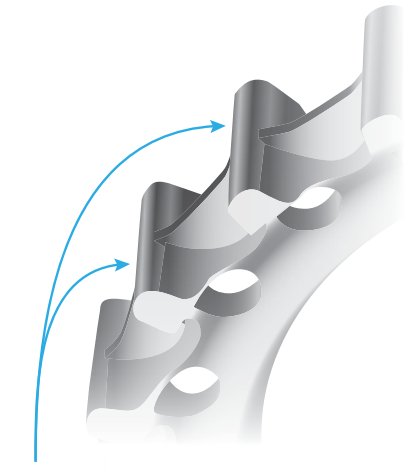
Gates Carbon Drive™ belts and sprockets are extremely durable and built to offer a long life, but they do wear and tear over time. Periodically, carefully inspect your belt and sprockets for signs of deterioration:

This belt is in **excellent condition**. Loss of blue color does NOT indicate wear.

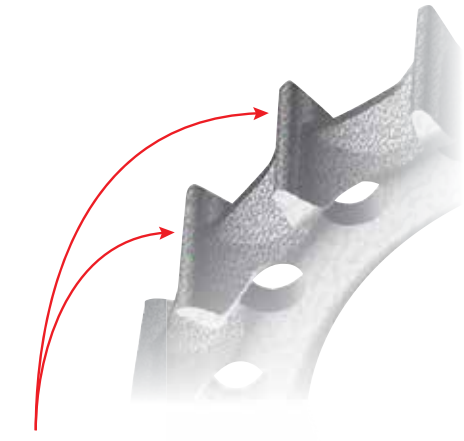


Replace your belt when it shows these signs of wear and tear.

WARNING: Using a worn or damaged Carbon Drive belt or failing to properly inspect the Carbon Drive belt before each usage can result in property damage and serious bodily injury, including death.



This sprocket is in **excellent condition**.



Replace your sprockets when the teeth become worn.

CARBON DRIVE™ SYSTEMS LIMITED PRODUCT WARRANTY

We make this quality commitment: at the time of sale to our customers, Gates Carbon Drive Systems Products (belts, sprockets, and accessories used in the bicycle market) will be free from defects in materials and workmanship. Products will be warranted only to the original retail purchaser for a period of two years from the original date of purchase. If we determine a product does not comply, we will, at our option, replace or repair the product. This is your exclusive remedy. Color fade and color difference is not warranted.

Damage to the product due to abuse, improper use or installation, unauthorized modifications, inadequate maintenance, or failure to follow Gates Carbon Drive Systems' published recommendations for installation, use, and service will automatically void this warranty. Before using this product, please read the handling and installation instructions carefully (a copy of which is located at: **www.GatesCarbonDrive.com/OwnersManual**).

For warranty service, please contact the retailer from whom the product was purchased.

THERE IS NO OTHER EXPRESS WARRANTY. FURTHER, WE DISCLAIM ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY.

Some states do not allow the exclusion or limitation of damages, and some states do not allow limitations on how long a warranty lasts, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

RETURN POLICY: Gates Carbon Drive System Belts cannot be returned or exchanged.

Warranty submission form at: **GatesCarbonDrive.com/Warranty**

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