ADVANCING HOW THE WORLD MOVES

PERSONAL MOBILITY DRIVE SOLUTIONS
GATES HISTORY OF PROVEN DRIVETRAIN TECHNOLOGY ADVANCEMENTS FOR MOBILITY

1911
FOUNDED
DENVER, CO

1917
INVENTED
V-BELTS

1942
CO-DEVELOPED
SYNTHETIC RUBBER
MASS PRODUCTION

1980
ENGINEERED AND
DEVELOPED BELTS
to replace chains
on motorcycles

1986
INTRODUCED
REVOLUTIONARY
POLY CHAIN
SYNCHRONOUS BELT
GATES CORPORATION IS A LEADING MANUFACTURER OF APPLICATION-SPECIFIC POWER TRANSMISSION AND FLUID POWER SOLUTIONS. WE ARE DRIVEN TO CONTINUALLY PUSH THE BOUNDARIES OF MATERIALS SCIENCE TO ADVANCE THE WAY THE WORLD MOVES.

Gates belts are driving a revolution in personal and micromobility that is transforming how the world gets from A to B. From two-wheelers to four-wheelers, ICE or electric, we deliver belt drive solutions and engineering support to rapidly move your projects from concept to reality.

Our highly trained application engineers work with you from inception to completion, optimizing your design, selecting the ideal drivetrain products, and delivering a power transmission solution that exceeds performance goals for efficiency, durability, and customer satisfaction.
PERSONAL MOBILITY DRIVE SOLUTIONS

NEW PRODUCTS
- MOTO X9 BELTS
- MUDPORT SPROCKETS
- NEW CENTERTRACK SPROCKET DESIGN

MATERIALS SCIENCE TECHNOLOGIES
- CONSTRUCTION
- DURABILITY
- PERFORMANCE
TECHNICAL EXPERTISE
- System Design
- Specifications
- Global Support

BROAD PROVEN PORTFOLIO
- Belts
- Sprockets
- Idlers
- Tensioners
NEXT GENERATION DRIVE BELT FOR MOTORCYCLES AND SCOOTERS

INTRODUCING CARBON DRIVE MOTO X9

Gates most advanced drive belt combines our latest technologies in tooth profile design, polyurethane belt compound, carbon tensile cord, and belt construction – creating our narrowest drive belt for motorcycles and scooters.

Carbon Drive Moto X9 delivers extraordinary performance while retaining Gates legendary long lasting and low maintenance characteristics.

LEANER. LIGHTER. STRONGER.

Carbon Drive Moto X9 advanced 11mm construction creates drive flexibility with significant advantages over previous generations of both 14mm and 8mm pitch belts.

GatesCarbonDrive.com/MotoX9
**DRIVE BENEFITS ACHIEVABLE WITH CARBON DRIVE MOTO X9**

**SMALLER DRIVE PACKAGE**
- Reduced Sprocket Diameters (20t DriveR Minimum)
- Less Weight - Material Dependent
- Narrower Belt Width

**DRIVE RATIO FLEXIBILITY**
- Increased Torque
- Eliminate Gear or Reduction Drives for Electric Motors

**LONGER LIFE**
- Under Same Load Conditions
- Up to 84%

Visit [GatesCarbonDrive.com/MotoX9](http://GatesCarbonDrive.com/MotoX9) to view our webinar and download our white paper to learn about the advantages Moto X9 belts bring to scooter and motorcycle applications, specifically related to the drivetrain weight and packaging, vehicle torque, and drivetrain longevity.
NEW MUDPORT SPROCKETS

SPECIFICATIONS

- Patent pending port design for debris-shedding
- 11mm pitch ideal for ICE and electric two-wheelers
- Optimized tooth profile for smooth performance
- Single or Double flange options
- Significantly decreased noise and maintenance compared to chains

Gates Carbon Drive MudPort™ innovation delivers a belt-drive system for scooters and motorcycles that is expected to increase lifetime in high-debris riding conditions while reducing weight vs. standard sprocket designs.

MudPort is compatible with the entire line of Gates Carbon Drive 11mm pitch polyurethane scooter and motorcycle belts and comes in a range of widths and diameters to fit most two-wheel applications.

Learn more about Gates motorcycle and scooter drive solutions, or schedule your application review with one of our engineers at: Gates.com/Mobility
NEW CENTERTRACK SPROCKET DESIGN

SPECIFICATIONS

- Sprocket Width reduction (5mm+)
- Sprocket Weight reduction (up to 10%)
- Equivalent Belt Life to Standard Belt Drive

CENTERTRACK BELT SYSTEMS NOW ENABLE OFF-ROAD APPLICATIONS

Gates has now expanded the proven Carbon Drive bicycle sprocket technology for wider belt applications of motorcycles and scooters. This new CenterTrack design delivers all the benefits of belt drive plus the debris-shedding off-road capabilities previously associated only with chain. Elimination of the standard outer flanges reduces system width, weight, and cost.
GATES BELT DRIVE SYSTEMS IMPROVE UPON THE BEST CHARACTERISTICS OF BOTH CHAIN AND SHAFT OPTIONS

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**GATES BELT DRIVE SYSTEMS OUTPERFORM CHAIN WITHIN 2-WHEEL PERSONAL MOBILITY**

<table>
<thead>
<tr>
<th>MANUFACTURER PRIORITIES</th>
<th>POOR</th>
<th>GOOD</th>
<th>BEST</th>
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<tr>
<td><strong>EFFICIENCY</strong> <strong>(OVER LIFETIME)</strong></td>
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<td><strong>NOISE</strong></td>
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<td><strong>TOTAL COST OF OWNERSHIP</strong></td>
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**PROS**

- Lightweight – low rotating mass
- Smooth power transmission
- Desirable failure mode
- Efficient
- Runs clean
- Life >80K miles
- Low maintenance
- Inexpensive

**CONS**

- Heavy
- Expensive piece price
- Difficult failure replacement
- Inefficient
- Easy failure replacement
- Requires regular maintenance
- Life <80K miles
- Noisy
- Inexpensive
- Compact packaging
- Runs dirty
GATES MATERIAL SCIENCE ADVANCEMENTS
IMPROVE BELT PERFORMANCE WITH
CARBON FIBER TENSILE CORDS

SIGNIFICANT IMPROVEMENTS OVER ALL OTHER TENSILE CORDS – INCLUDING ARAMID (KEVLAR®) AND STEEL

- High power density delivers the most compact and lightweight drive designs
- High flex fatigue resistance – exceeding steel, glass, and aramid fibers
- High modulus & dimensional stability – negligible elongation, keeping pitch fit constant at various loads
- High strength-to-weight ratio
- Low noise
- Environmental resistance – no degradation from water, oil, most contaminants

DuPont™ and Kevlar® are trademarks or registered trademarks of E.I. du Pont de Nemours and Company.

BELT DRIVE EVOLUTION

Gates enjoys a 40+ year history in motorcycle drives – introducing our first drive belt in 1980 with continuous belt construction advancements creating narrower belt widths.

- First carbon tensile cord motorcycle drive belt in 2003
- Introduced in 1999, Gates 14mm pitch high-torque belts are now narrower than 530 chain
- Launched in 2010, our 11mm pitch medium-torque belts, now in Moto X9 construction, rival 520 chain width

GATES.COM/MOBILITY

PERSONAL MOBILITY DRIVE SOLUTIONS
MEETING YOUR DESIGN NEEDS AT EVERY TURN

Partner with Gates early in your design to extend your engineering team and expand your power transmission experience to achieve the right balance between performance and cost effectiveness. We start by understanding:

- How does your design move, operate, and function?
- What temperatures, environments, fuel efficiency, loads, or power demands will your system require?
- What type of service, maintenance, and support is required to meet your market demand?

From there, we apply our proprietary software tools to optimize your drivetrain design.
GLOBAL ENGINEERING DESIGN & SUPPORT

- **Drive System Design**
  - Advanced Systems Engineering
  - Component Modeling and Design

- **Drive System Validation**
  - Clarify System Targets
  - Product Testing Assistance
  - Drive Improvement Analysis

- **VE/VA Analysis**
  - Evaluate Opportunities to Improve Drive System
  - Supply Chain Simplification

- **Global Project Coordination**
  - Seamless Global Collaboration to Completion
  - Global Sourcing Capabilities

GATES GLOBAL FOOTPRINT DELIVERES PRODUCT SUPPORT THROUGHOUT YOUR PRODUCTS LIFE-CYCLE: DESIGN, MANUFACTURING, AND AFTER-SALES

- In-Region / For-Region Manufacturing Strategy
- Local Commercial Teams Establish Close, Long-Term Customer Relationship
- Global Market Coverage Within Established Channel Presence

NORTH AMERICA
- 15 Manufacturing facilities
- 12 Sales offices
- 14 Warehouses
- 2 Major R&D centers

SOUTH AMERICA
- 2 Manufacturing facilities
- 2 Sales offices
- 2 Warehouses

GLOBAL HEADQUARTERS
Denver, Colorado

EMEA HEADQUARTERS
Brussels, Belgium

GREATER CHINA
- 6 Manufacturing facilities
- 5 Sales offices
- 7 Warehouses
- 1 Major R&D center

EUROPE, MIDDLE EAST & AFRICA
- 13 Manufacturing facilities
- 17 Sales offices
- 9 Warehouses
- 2 Major R&D centers

EA&I HEADQUARTERS
Singapore

GATES TECHNICAL ENGINEERING CENTERS AND TECHNICAL SALES OFFICES are located around the world to support your design, manufacturing, and after-sales efforts – get moving with Gates.

GATES.COM/MOBILITY
WIDEST PORTFOLIO IN THE INDUSTRY

BELTS
- Synchronous
- Micro-V Belts
- CVT Belts
- CAM Belts in Oil
- V-Belts

SPROCKETS
- CenterTrack or MudPort Debris-Shedding Designs
- Wear and Corrosion Resistance Coatings
- Paint and Finish Options
- Global Manufacturing and Assembly Capabilities
IDLERS & POWER TRANSMISSION COMPONENTS

- Pulleys
- Idlers and Tensioners
- Isolators – Cush Drive
- Accessory Drive Kits
- Water Pumps
- Electric Water Pumps

TOOLS

- System Alignment Tools
- Sonic Tensions Meters

FLUID POWER PRODUCTS

- Formed Engine Hose
- Hose – Tube Assemblies
- Hydraulic Hose
- Fuel Lines
GET MOVING WITH GATES

Gates has technical engineering centers and technical sales offices around the world to support your design, manufacturing, and after-sales efforts. Contact us at Gates.com/Mobility