CARLISLE®
BRAKE & FRICTION

COMPANY PROFILE

GLOBAL MANUFACTURER
QUALITY SUPPLIER
FULL SYSTEM DESIGNER

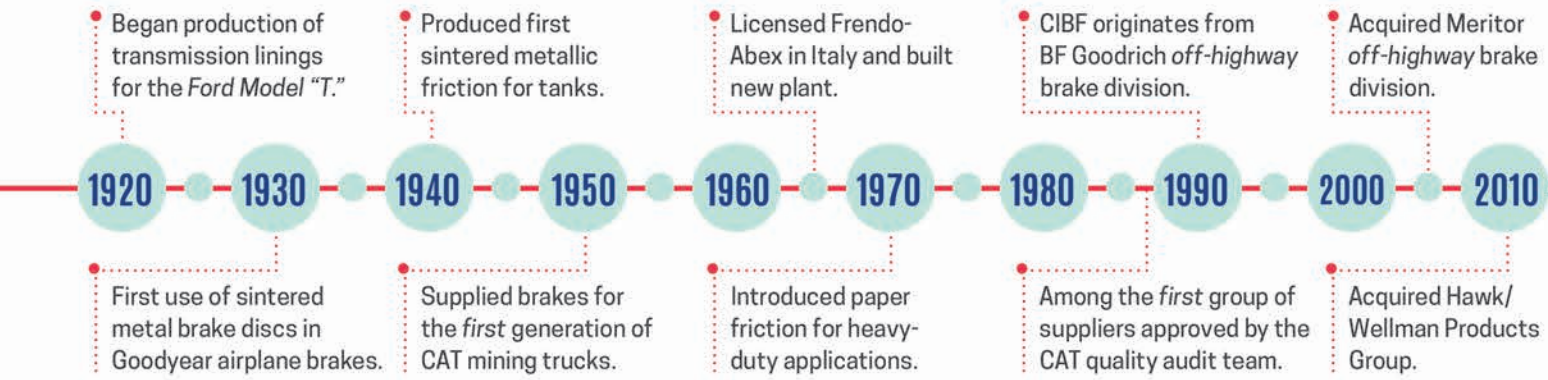
HYDRAULIC CONTROLS
FRICTION COMPONENTS
CLUTCH ASSEMBLIES
TRANSMISSION DISCS
BRAKE SYSTEMS

OVERVIEW

Carlisle Brake & Friction is a globally recognized leader in the development and manufacture of highly innovative brake and friction system solutions to service a diverse range of motion control applications. The comprehensive nature of Carlisle's brake system expertise includes hydraulic control products, industrial brake assemblies, wet and dry friction material for brake, clutch and transmission applications as well as aftermarket replacement kits, all developed and manufactured under the Carlisle umbrella. Our full-system product offering supported by our industry-experienced staff of experts provides our customers with brake system solutions that set them apart from their competition.

HISTORY

Since 1924, Carlisle has remained committed to providing the most technologically advanced, high-quality brake system solutions to our OEM and Aftermarket customers. The legacy of Carlisle products can be traced back to the early 20th century with the production of transmission linings for the Ford Model T. Today, millions of people use our products in thousands of applications across the globe.



In every intense environment of controlled movement, rely on the best brake technology. Demand Carlisle Brake & Friction.

SUSTAINABILITY

Carlisle Brake & Friction is a division of Carlisle Companies Incorporated (NYSE: CSL), a diversified global manufacturing company. Carlisle's family of businesses builds market leadership to create an enduring competitive advantage, and thereby adds value for our shareholders. Carlisle carefully allocates resources to businesses that already have or have potential to obtain leadership in their markets. At Carlisle, we strive to consistently grow these businesses by increasing market share, improving manufacturing processes and targeting new markets with expanded product lines.

COMPANY CULTURE

With over 1,700 employees worldwide, Carlisle is comprised of a very diverse group of industry leaders, experienced talent, and solution providers who collaborate to achieve continuous improvement and customer satisfaction. Each individual employee is valued and encouraged to inspire fellow team members to succeed.

At Carlisle, our commitment to product innovation, dedication to lean manufacturing practices and demonstrated customer focus provides a work environment where our employees drive the future of our business and their own development.

Carlisle strives to maintain successful business practices in order to provide safety, economic security and career development for all our employees. Our company culture is strongly tied to the Carlisle core values which are the foundation of our responsive, resourceful and progressive point-of-view.

CARLISLE CORE VALUES

SAFETY of all employees is Carlisle's No. 1 priority. Every employee is committed to producing safe products and sustaining a safe and healthy work environment for all.

Carlisle seeks to **CONTINUOUSLY IMPROVE** global business processes through the execution of Six Sigma events as part of our mission to foster efficiency, enhance quality and provide value to our **CUSTOMERS**.

A culture of global collaboration, **TEAMWORK** and active **COMMUNICATION** encourages synergy across departments and increases productivity. **HONESTY AND INTEGRITY** are also fundamental characteristics ingrained in the Carlisle culture. Ethical business practices are highly encouraged in both internal and external business transactions.

We believe anyone can make a difference, and everyone should try. We expect each other to accomplish great things and focus on results. We **EMPOWER** our employees to take **ACTION** and best serve our global customer base to produce products and solutions that they can rely on.

PRODUCT SOLUTIONS

FULL-SYSTEM SOLUTIONS

Carlisle designs and manufactures brake system solutions:

- **Hydraulic actuation products:** hydraulic valves, master cylinders, adjustors and boosted master cylinders
- **Brake assemblies:** dry disc caliper brakes, drum brakes and mechanical brakes for both service and park applications
- **Wet and dry friction materials:** wet brake, brake lining, clutch and transmission friction
- **Aftermarket replacement parts:** original Carlisle spare parts and component kits

Each Carlisle brake solution is engineered to optimize key performance characteristics and maximize overall vehicle efficiencies. Our integrated brake system solutions move from the foot pedal to the hydraulic booster to the brake. Our proven experience and commitment to the global marketplace make Carlisle the right choice to fulfill the many unique brake system requirements of our diverse customer base.

Carlisle Advantages

Brake system provider
Advanced engineering services
Local manufacturing and shipping by region
High quality supplier
Customer specific solutions

Costs Savings

Reduced overhead costs
Reduced development and testing costs
Reduced shipping costs
Reduced quality control costs
Reduced design costs from extended product life style

Carlisle is focused on servicing our customers by keeping their supplier base at a minimum.

ADVANTAGES

At Carlisle, we pride ourselves on providing economic benefits to our customers. Our full brake system solutions allow customers to reduce their supply chain, eliminate additional overhead costs and free up time so that they may focus on what matters most, their core business.

In addition, Carlisle's global presence allows us to determine the most cost-effective manufacturing location, considering the total cost of procurement of each customer. This includes global sourcing, where Carlisle remains committed to providing the best value parts for each customer in our efforts to maximize cost savings.

MARKETS SERVED

Carlisle offers proven brake system designs for a wide range of markets, vehicle applications & equipment.

MARKETS DEFINED

AEROSPACE
Commercial jets
General aviation aircraft
Military aircraft
Helicopters

MINING
Front-end loaders
Haulage trucks
Articulated dump trucks
Underground mining
Winches

AGRICULTURE
2-wheel-drive tractors
4-wheel-drive tractors
Combines

MILITARY
Land vehicles
Transports
Tanks
Assault vehicles
Construction equipment

CONSTRUCTION
Backhoe loaders
Off-highway winches
Compactors
Articulated dump trucks
Wheel loaders, Pavers
Graders, Excavators,
Rollers, Bulldozers
Mobile cranes

MOTORSPORTS
Drag
Sports car
Late model
Circle track & open-wheel

INDUSTRIAL
Material handling
Transit systems
Cranes
Elevators

ON-HIGHWAY / COMMERCIAL VEHICLE
Class 1-6 trucks & commercial vehicles
Class 7-8 commercial trucks
Dump trucks
Emergency vehicles & school bus

MANUFACTURING EXCELLENCE

Carlisle is committed to providing world-class manufacturing capabilities to a multi-national customer base and to support their continued global expansion. Carlisle maintains manufacturing centers in the United States, China, Italy, UK, Japan and India.

MANUFACTURING EXCELLENCE

- **Automated and semi-automated production lines**
- **Dedicated cell production**
- **Component assembly**
- **Testing capability**
- **Fully implemented lean manufacturing**
- **Quality management through rigorous controls**
- **Six Sigma culture**
- **Performance driven sales & operations planning (S&OP)**

All Carlisle manufacturing facilities are accredited or certified to be in conformance with either the ISO or TS standards.

Carlisle invests annually in state-of-the-art manufacturing equipment to further increase productivity, efficiency, precision and consistent quality.

COMMITMENT TO LEAN CULTURE

The Carlisle Operating System (COS) is a global lean business process of employees creatively working together to maximize performance in order to drive exceptional value for our customers and shareholders. COS allows us to increase our overall profitability by eliminating waste and improving efficiencies, while reducing the impact on the environment at every level throughout all of Carlisle's operations.

COS generates continuous process and quality improvement.

CREATING A WINNING SPIRIT

Growth and continuous innovation do not only require investment into technology, but also into talent and people. At Carlisle, our people do what it takes to get the job done. Innovation is an everyday event on our factory floors.

Each factory's innovative ideas and processes are enthusiastically shared across continents. As a result, the manufacturing environment in each of our plants is charged with the positive energy of continuous improvement. Our people make it work.

RESEARCH & DEVELOPMENT

Carlisle is renowned for developing innovative brake system solutions for OE's across the globe. Our superior brake technology, diverse friction material expertise, advanced application engineering and progressive design techniques provide substantial benefits to our manufacturing partners. At Carlisle, we empower world-class OE's by developing products that yield a significant competitive advantage.

With the most extensive research and testing capabilities in the industry, Carlisle is able to bring customer applications to life and qualify the performance capabilities of our extensive technologies.

VALUE-ADDED SERVICES & ENGINEERING CAPABILITIES

- **25 inertia dynamometers**
- **70+ engineers and material scientists**
- **R&D capabilities in each manufacturing facility worldwide**
- **40+ year active database of test results**
- **Long-term relationships with leading raw material suppliers**
- **Staff of experts - Collectively bring more than a century of brake & friction experience**
- **Testing results determine solutions for customers**

STATE-OF-THE-ART TECHNOLOGY

Carlisle understands the customer's need often changes and the necessity to keep up with industrial technology progression. To maintain our competitive advantage, we continuously invest in raw material, research and testing technology.

New Analytical Lab

Scanning Electron Microscope
Polarizing Light Microscope
FTIR
Thermal Conductivity Meter

Innovative Lab Equipment

Hot Pressing Machine
Hand Sheet Press
New Paper Lab

Advanced Testing Capabilities

Dyno Control Upgrades
Paper Fatigue Tester

GLOBAL. EXPERIENCED. INNOVATIVE.

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