



BRAKE SYSTEMS FOR MINING EQUIPMENT

Carlisle Brake & Friction has been the brake supplier of choice in the mining industry for decades, counting the world's largest and most respected mining OEMs as customers, including CAT, Komatsu, Liebherr, Hitachi, Terex and Sany. Carlisle first began supplying braking products to the mining industry in the 1930s at the onset of off-highway vehicle manufacturing.

Over the past seventy years Carlisle has established itself as the undisputed industry leader in dry brake system and friction solutions. Recently the evolution of large scale wet braking systems has created a technology shift in the industry. Carlisle met the challenge and developed high density paper and carbon paper friction discs that provided OEMs unparalleled performance and durability.

Carlisle consistently remains in the braking technology forefront by adapting to the changes in the industry, expanding the technology envelope and ultimately providing superior solutions to world class OEMs around the world.

PARK & EMERGENCY BRAKES



G Series Parking Brake

Spring-applied hydraulically or air released park brakes.

- Ductile iron casting for high strength
- G1: manual or automatic slack adjusters, dynamic stop capabilities, and less fade in emergency than drum brakes
- G2: manual adjuster to compensate for lining wear, and uses mineral or brake fluid

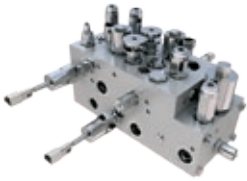


Heavy Duty Mining Haulage Service Brakes

Hydraulically actuated, triple opposed piston, caliper disc brake designs.

- Ductile iron casting for high strength
- Multiple brakes can be mounted on a single disc
- Carlisle "in house" friction material

HYDRAULIC VALVES



Brake Control Manifold

Designed around the unique needs of the end user to consolidate functions and simplify vehicle plumbing.

- Parking brake control valve
- Spotting option
- Slippery road option
- Brake circuit isolation



2100 Series Power Valve

Single and parallel circuit, modulating hydraulic control valve.

- High flow capabilities versus competitive designs
- Pedal angle fully adjustable
- Easy serviceability and reduced maintenance costs
- Output pressure range of 40-240 bar



Hydraulic Slack Adjuster

Provides in-line adjustment of high displacement hydraulic brakes and running clearance at each brake application.

- Rugged cast iron construction
- Available in single and dual circuit configurations
- Capacities range from 57 – 257 cm³

WET FRICTION MATERIALS



Brake Materials

Carlisle has developed a variety of friction materials with high energy absorption capability and smooth engagement characteristics.

- High heat capability
- Ability to withstand high unit loading
- Smooth engagement characteristics
- Resists glazing from oil abuse
- Comprehensive material technology coverage
- Manufactured in ISO certified facilities



Power Transmission Materials

Carlisle has developed a wide range of friction materials for powershift and counter shaft transmission applications.

- Oil cooled friction materials with high energy capacity
- Tolerance to operate under very high unit loading
- High dynamic and static coefficients of friction
- Available in a range of thicknesses and oil groove patterns
- High power
- Minimizes "hot spotting" of opposing plates
- Smooth engagement characteristics



To learn more about Carlisle's mining vehicle braking systems contact one of our sales offices or visit www.carlislecbf.com

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