Carlisle offers proven brake system designs for a wide range of off-highway vehicles and equipment. Our integrated brake solutions move from the foot pedal to the hydraulic actuator to the brake – including the friction material. We design and build dry disc caliper brakes, drum brakes and mechanical brakes for both service and park applications. When you specify a Carlisle brake system you can count on smooth, quiet and dependable stopping power. In addition, now many of our brakes are manufactured in our Hangzhou, China plant... ensuring you get the most cost effective, highest quality brake system in the world.

Carlisle operates a flexible, world class manufacturing plant in Hangzhou China that produces off-highway brakes, heavy duty friction and brake shoes. This 13,470 sqm facility has recently added state-of-the-art turning and CNC machining technology as well as expanded brake assembly and testing capabilities.

**COMPLETE BRAKE SYSTEMS**

Carlisle offers proven brake system designs for a wide range of off-highway vehicles and equipment. Our integrated brake solutions move from the foot pedal to the hydraulic actuator to the brake – including the friction material. We design and build dry disc caliper brakes, drum brakes and mechanical brakes for both service and park applications. When you specify a Carlisle brake system you can count on smooth, quiet and dependable stopping power. In addition, now many of our brakes are manufactured in our Hangzhou, China plant... ensuring you get the most cost effective, highest quality brake system in the world.

**CARLISLE BENEFITS**

- Complete brake systems – hydraulic controls, service brakes, park brakes and friction
- Proven OE supplier for over 50 years
- Manufacturing and engineering support in Asia, US and Europe
- All designs adhere to SAE brake and ISO requirements
- Clean sheet or modified standard designs
- Quick turn prototypes
- Many new control, engagement and operator warning features for increased safety
- Extensive testing to ensure in-field performance and reliability
- Maintenance of an inventory of service parts for all brakes we manufacture

**PARTNER TO OEMS AROUND THE WORLD**

Since our introduction of a caliper disc park brake more than 50 years ago, we’ve been a key partner to most of the off-highway industry’s major OEMs. Our organization is well positioned to provide global customer support, including manufacturing, logistics and service. Carlisle is an experienced supplier of complete brake solutions that OEMs around the world can count on for high performance braking.
WHY REPLACE OLD DRUM BRAKE TECHNOLOGY WITH FAILSAFE OR MANUAL CALIPER PARK BRAKES?

Drum brakes have been used on heavy mining, construction and utility vehicles for many years but brake development cannot stand still. Disc brakes offer several performance and cost advantages over the aging drum and are far easier to maintain.

——Jim Marietta, Carlisle Industrial Brake & Friction, USA

DISC vs DRUM

Disc systems usually weigh less than drum brakes and are far easier to service when the time comes to replace the friction material; they allow very easy visual inspection for lining wear and adjustment. Disc brakes can also be adapted to different brake torque requirements simply by changing disc diameters, while retaining common calipers. This feature allows common brakes across a broad vehicle product line.

As the vehicle industry increasingly uses spring-applied hydraulically-released SAHR (failsafe) brakes, the drum brake has become more cumbersome. While the disc brake provides a compact package with an integral release piston, drum brakes have gained heavy spring chambers with hydraulic diaphragms and large springs required to generate the necessary high-lever pull forces. These additions have made the drum brakes less desirable as a spring-apply hydraulic release unit due to higher weight and greater cost.

<table>
<thead>
<tr>
<th>Weight (relative to amount of Brake Torque)</th>
<th>CARLISLE SA7000 SERIES</th>
<th>CARLISLE RT SERIES</th>
<th>DRUM BRAKE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light</td>
<td>13.06kg</td>
<td>Very Light</td>
<td>Heavy</td>
</tr>
<tr>
<td>Very Light</td>
<td>3.2kg</td>
<td></td>
<td>20kg</td>
</tr>
<tr>
<td>Installation Requirements</td>
<td>Small space</td>
<td>Small space</td>
<td>Large space</td>
</tr>
<tr>
<td></td>
<td>193.8 × 195.9 × 135.7mm</td>
<td>127 × 118.7 × 87.4mm</td>
<td>O.D.: 262mm, Width:75mm</td>
</tr>
<tr>
<td>Mounting</td>
<td>Cantilever Mounted</td>
<td>Cantilever Mounted</td>
<td>Complex</td>
</tr>
<tr>
<td>Extra Brackets/Linkages</td>
<td>Few</td>
<td>Few</td>
<td>Many</td>
</tr>
<tr>
<td>Adjustment</td>
<td>Easy</td>
<td>Easy</td>
<td>Difficult to adjust</td>
</tr>
<tr>
<td>Max Brake Torque</td>
<td>High (Worn: 3,996 Nm)*</td>
<td>High (4,539 Nm)*</td>
<td>Low (1,500 Nm)</td>
</tr>
<tr>
<td>Lining Replacement</td>
<td>Easy</td>
<td>Easy</td>
<td>Difficult</td>
</tr>
<tr>
<td>Lining Retraction</td>
<td>Magnetic Retractors</td>
<td>Spring Retractors</td>
<td>Spring Retractors</td>
</tr>
<tr>
<td>Value for Money</td>
<td>Very Good</td>
<td>Excellent</td>
<td>Good</td>
</tr>
</tbody>
</table>

* brake disc OD: 500mm

EXPORT MARKET DRIVERS FOR PARKING BRAKES

Construction and material handling equipment vehicles in Australia, Canada, US and Europe are using disc park brakes as the standard. In developing countries, the trend is toward disc park brakes. Drum park brakes have become obsolete due to their relative lack of performance and safety in extreme conditions. In addition, life-time costs due to drum park brake weight, difficulty of installation as well as frequency of maintenance and repair - make drum park brakes prohibitive in today’s export markets.
**APPLICATIONS**

- Construction: Wheel Loaders, Backhoe Loaders, Pavers, Graders, Excavators, Rollers
- Articulated Dump Trucks
- Agricultural Vehicles
- Underground Mining
- Mobile Crane
- Telehandlers
- Industrial Equipment

**PARKING BRAKES**

- RT Mechanically Activated, Park Brake
- SA7000 Spring Applied, Hydraulic Release Park Brake
Choose a Carlisle SA SERIES SPRING APPLIED HYDRAULIC RELEASED Park Brake?

FAILSAFE — brake engages automatically upon loss of hydraulic or pneumatic pressure

- Substantial brake clamp force ideal for parking and emergency braking needs – able to hold vehicle on gradient
- Easy adjustment centering mechanism during installation
- Easy manual clearance adjustment mechanism after lining wear
- Quick and simple lining replacement – reducing maintenance time and down time
- Magnetic retractors ensure running clearance, eliminate drag – longer running life
- Semi-metallic or sintered linings available
- Ductile iron casting for high strength
- Brake supplied with mounting hardware
- Cantilever mount with special jam nuts
- Mounting bolts are plated to resist corrosion, eliminating the need for costly seals that can fail with time
- Eliminates mechanical linkages, brackets and connections simplifying design and reducing cost

Carlisle SA Series parking brakes are spring-applied, hydraulically released (SAHR), sliding caliper brakes designed for static and emergency braking applications.
**SPECIFICATIONS**

**Caliper Material**
High-strength ductile iron

**Actuation**
Spring applied, hydraulically released

**Mounting**
Cantilever mounting on sliding pin; 3/4-10 thread

**Release Pressure**
89.6bar-206.8bar / 1,300psi-3,000psi

**Lining Material**
Non-asbestos or sintered metallic

**Lining Area per Brake**
102.2cm² / 15.84in²

**Lining Volume per Brake**
64.95cm³ / 3.96in³

**Disc Friction Radius**
Disc Diameter 2-25.4mm / 2-1.0in

**Formulas**
Torque(lb-in)=K×Disc Friction Radius(in)  
Torque(N-m)=K×Disc Friction Radius(m)

**Disc Thickness**
9.5mm-12.7mm / 0.38in-0.5in

**Disc Diameter**
254.0mm-508.0mm / 10.0in-20.0in

**Final Assy Weight**
13.06kg / 28.8lbs

**Static (New)-K**
23,575N / 5,300lbs

**Static (Worn)-K**
17,792N / 4,000lbs

www.carlislebrake.com/cn
SA7000
Low Pressure Hydraulic Actuated

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caliper Material</td>
<td>High-strength ductile iron</td>
</tr>
<tr>
<td>Actuation</td>
<td>Spring applied, hydraulically released</td>
</tr>
<tr>
<td>Mounting</td>
<td>Cantilever mounting on sliding pin; 3/4-10 thread</td>
</tr>
<tr>
<td>Release Pressure</td>
<td>11.7bar-18.6bar / 170psi-270psi</td>
</tr>
<tr>
<td>Lining Material</td>
<td>Non-asbestos or sintered metallic</td>
</tr>
<tr>
<td>Disc Diameter</td>
<td>9.5mm-12.7mm / 0.38in-0.5in</td>
</tr>
<tr>
<td>Disc Diameter</td>
<td>254.0mm-508.0mm / 10.0in-20.0in</td>
</tr>
<tr>
<td>Disc Friction Radius</td>
<td>Disc Diameter 2-25.4mm / 2-1.0in</td>
</tr>
<tr>
<td>Lining Area per Brake</td>
<td>102.2cm² / 15.84in²</td>
</tr>
<tr>
<td>Lining Volume per Brake</td>
<td>64.95cm³ / 3.96in³</td>
</tr>
<tr>
<td>Formulas</td>
<td>Torque(lb-in)=K×Disc Friction Radius(in) Torque(N-m)=K×Disc Friction Radius(m)</td>
</tr>
<tr>
<td>Disc Thickness</td>
<td>254.0mm-508.0mm / 10.0in-20.0in</td>
</tr>
<tr>
<td>Final Assy Weight</td>
<td>16.33kg / 36.0lbs</td>
</tr>
<tr>
<td>Static (New)-K</td>
<td>28,246N / 6,350lbs</td>
</tr>
<tr>
<td>Static (Worn)-K</td>
<td>17,792N / 4,000lbs</td>
</tr>
</tbody>
</table>

**Formulas**

- Torque(lb-in)=K×Disc Friction Radius(in)
- Torque(N-m)=K×Disc Friction Radius(m)
SA7000
Low Pressure Air Actuated

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Caliper Material</th>
<th>High-strength ductile iron</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuation</td>
<td>Spring applied, air released</td>
</tr>
<tr>
<td>Mounting</td>
<td>Cantilever mounting on sliding pin; 3/4-10 thread</td>
</tr>
<tr>
<td>Release Pressure</td>
<td>3.1bar - 4.8bar / 45psi-70psi</td>
</tr>
<tr>
<td>Lining Material</td>
<td>Non-asbestos or sintered metallic</td>
</tr>
<tr>
<td>Lining Area per Brake</td>
<td>102.2cm² / 15.84in²</td>
</tr>
<tr>
<td>Lining Volume per Brake</td>
<td>64.95cm³ / 3.96in³</td>
</tr>
<tr>
<td>Disc Friction Radius</td>
<td>Disc Diameter 2-25.4mm / 2-1.0in</td>
</tr>
<tr>
<td>Formulas</td>
<td>Torque(lb-in)=K×Disc Friction Radius(in) Torque(N-m)=K×Disc Friction Radius(m)</td>
</tr>
</tbody>
</table>

| Disc Thickness   | 9.5mm-12.7mm / 0.38in-0.5in |
| Disc Diameter    | 254.0mm-508.0mm / 10.0in-20.0in |
| Final Assy Weight | 16.33kg / 36.0lbs |
| Static (New)-K   | 23,575N / 5,300lbs |
| Static (Worn)-K  | 17,792N / 4,000lbs |

www.carlislebrake.com/cn
**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Caliper Material</strong></td>
<td>High-strength ductile iron</td>
</tr>
<tr>
<td><strong>Actuation</strong></td>
<td>Spring applied, hydraulically released</td>
</tr>
<tr>
<td><strong>Mounting</strong></td>
<td>Double shear on slide pins</td>
</tr>
<tr>
<td><strong>Release Pressure</strong></td>
<td>89.6 bar-206.8 bar / 1,300 psi-3,000 psi</td>
</tr>
<tr>
<td><strong>Lining Material</strong></td>
<td>Non-asbestos or semi-metallic</td>
</tr>
<tr>
<td><strong>Lining Area per Brake</strong></td>
<td>285.8 cm² / 44.3 in²</td>
</tr>
<tr>
<td><strong>Lining Volume per Brake</strong></td>
<td>363 cm³ / 22.2 in³</td>
</tr>
<tr>
<td><strong>Disc Friction Radius</strong></td>
<td>Disc Diameter 2-31 mm / 2-1.22 in</td>
</tr>
<tr>
<td><strong>Formulas</strong></td>
<td>Torque(lb-in)=K×Disc Friction Radius(in) Torque(N-m)=K×Disc Friction Radius(m)</td>
</tr>
</tbody>
</table>

| Disc Thickness          | 12.7 mm-25.4 mm / 0.5 in-1.0 in                           |
| Disc Diametre           | 363.0 mm-635.0 mm / 14.25 in-25.0 in                      |
| Final Assy Weight       | 31.7 kg / 70.0 lbs                                        |
| Static (New)-K          | 71,168 N / 16,000 lbs                                     |
| Static (Worn)-K         | 46,259 N / 10,400 lbs                                     |
**Specifications**

**Caliper Material**
High-strength ductile iron

**Actuation**
Spring applied, hydraulically released

**Mounting**
Cantilever mounting on sliding pin; 3/4-10 thread

**Release Pressure**
38 bar-100 bar / 551 psi-1450 psi

**Lining Material**
Non-asbestos / organic

**Lining Area per Brake**
99.3 cm² / 15.4 in²

**Lining Volume per Brake**
54.7 cm³ / 3.34 in³

**Disc Friction Radius**
Disc Diameter 2-25.4 mm / 2-1.0 in

**Formulas**
Torque(lb-in) = K x Disc Friction Radius(in)  
Torque(N-m) = K x Disc Friction Radius(m)

**Disc Thickness**
9.5-12.7 mm / 0.38-0.5 in

**Disc Diameter**
254.0 mm-635.0 mm / 10.0 in-25.0 in

**Final Assy Weight**
9.75 kg / 21.5 lbs

**Static (New)-K**
17,030 N / 3,828 lbs

**Static (Worn)-K**
13,113 N / 2,948 lbs

---

www.carlislebrake.com/cn
Choose a Carlisle RT SERIES MANUAL Park Brake?

VALUE FOR MONEY – this brake is a manual version of the SA Series (SAHR) park brake – similar brake force at a much lower cost – ideal for replacing aging drum brakes!!

- Substantial brake clamp force ideal for parking and emergency braking needs – able to hold vehicle on gradient
- Easy adjustment centering mechanism during installation
- Easy manual clearance adjustment mechanism after lining wear
- Quick and simple lining replacement – reducing maintenance time and down time
- Spring retractors ensure running clearance, eliminate drag – longer running life
- Simple and very weather proof; outer and inner boots seal moisture out of brake; special zinc plating on the cams – these features are key because the brake is often mounted low to the ground
- Many options in regards to linings – semi-metallic or sintered
- Retraction spring built in to keep linings centered over disk; linings never touch disk during service because of retractor
- Actuation lever may be indexed at 60° intervals, lever rotation direction can be uni or bi-directional
- Ductile iron casting for high strength
- Brake supplied with mounting hardware
- Cantilever mounted
- Mounting bolts are plated to resist corrosion, eliminating the need for costly seals that can fail with time
- Eliminates mechanical linkages, brackets and connections simplifying design and reducing cost
- Optional cable retention bracket available

RT SERIES
Carlisle RT Series parking brakes are mechanically actuated, sliding caliper brakes designed for static and emergency braking applications.
RT

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caliper Material</td>
<td>High-strength ductile iron</td>
</tr>
<tr>
<td>Actuation</td>
<td>Ball and ramp</td>
</tr>
<tr>
<td>Mounting</td>
<td>Cantilever mounting on sliding pin; 1/2-13 thread</td>
</tr>
<tr>
<td>Release Pressure</td>
<td>1,890N / 425lbs - Input Force*</td>
</tr>
<tr>
<td>Lining Material</td>
<td>Non-asbestos or sintered metallic</td>
</tr>
<tr>
<td>Lining Area per Brake</td>
<td>61.6cm² / 9.55in²</td>
</tr>
<tr>
<td>Lining Volume per Brake</td>
<td>39.2cm³ / 2.39in³</td>
</tr>
<tr>
<td>Disc Friction Radius</td>
<td>Disc Diameter 2-19.05mm / 2-0.75in</td>
</tr>
<tr>
<td>Formulas</td>
<td>Torque(lb-in)=K×Disc Friction Radius(in)</td>
</tr>
<tr>
<td></td>
<td>Torque(N-m)=K×Disc Friction Radius(m)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disc Diameter</th>
<th>Mounting Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.00</td>
<td>4.500</td>
</tr>
<tr>
<td>9.00</td>
<td>5.000</td>
</tr>
<tr>
<td>10.00</td>
<td>5.500</td>
</tr>
<tr>
<td>11.00</td>
<td>6.000</td>
</tr>
<tr>
<td>12.00</td>
<td>6.500</td>
</tr>
<tr>
<td>13.00</td>
<td>7.075</td>
</tr>
<tr>
<td>14.00</td>
<td>7.575</td>
</tr>
<tr>
<td>15.00</td>
<td>8.100</td>
</tr>
<tr>
<td>16.00</td>
<td>8.600</td>
</tr>
<tr>
<td>17.00</td>
<td>9.125</td>
</tr>
<tr>
<td>18.00</td>
<td>9.625</td>
</tr>
<tr>
<td>19.00</td>
<td>10.150</td>
</tr>
<tr>
<td>20.00</td>
<td>10.650</td>
</tr>
</tbody>
</table>

www.carlislebrake.com/cn
NF-786

GENERAL
NF-786 is molded material with medium friction.

FRICTION AND WEAR (SAE J661)
Normal \( m = 0.39 \)
Hot \( m = 0.40 \)
Wear Rate = 0.012 in.\(^3\)/hp.-hr.

THERMAL PROPERTIES

\[
\begin{array}{|c|c|}
\hline
\text{Temp.} & \text{Wt. Loss} \\
\hline
200°C & 0.4% \\
300°C & 1.1% \\
400°C & 3.2% \\
\hline
\end{array}
\]

TGA & TMA analyses are available upon request.

PHYSICAL PROPERTIES

\[
\begin{align*}
\text{Tensile}^2 (x\text{-direction}): & \quad 2250 \text{ psi} \\
\text{Flexural}^3 (y\text{-direction}): & \quad 4130 \text{ psi} \\
\text{Compressive}^4 (z\text{-direction}): & \quad 9520 \text{ psi} \\
\text{Shear}^7 (z\text{-direction}): & \quad 5070 \text{ psi} \\
\text{Hardness}^5 (\text{Gogan}): & \quad 11-17 \\
\text{Specific Gravity}^6: & \quad 2.1 \\
\end{align*}
\]

Test Procedures
1. SAE J661
2. ASTM-D 638-91
3. ASTM-D 790-97
4. ASTM-D 695-91
5. SAE J379a
6. ASTM-D 792-91
7. ASTM-D 732-93
— Formulation, design and manufacturing of friction material for brake products have been core competency at Carlisle Industrial Brake and Friction since the 1950s.

**NF-621**

**GENERAL**

NF-621 is molded material with very aggressively high friction. It is intended for static friction applications only. **WARNING:** Dynamic stops with NF-621 will severely wear the mating metal.

**FRICTION AND WEAR (SAE J661)**

Normal $m = 0.65$

Hot $m = 0.60$

Wear Rate $= 0.028$ in.3/hp.-hr.

**THERMAL PROPERTIES**

<table>
<thead>
<tr>
<th>Temp.</th>
<th>Wt. Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>200°C</td>
<td>0.1%</td>
</tr>
<tr>
<td>300°C</td>
<td>1.0%</td>
</tr>
<tr>
<td>400°C</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

**PHYSICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile $^2$ (x-direction)</td>
<td>4,600 psi</td>
</tr>
<tr>
<td>Flexural $^3$ (y-direction)</td>
<td>0,000 psi</td>
</tr>
<tr>
<td>Compressive $^4$ (z-direction)</td>
<td>23,000 psi</td>
</tr>
<tr>
<td>Shear $^5$ (z-direction)</td>
<td>9,400 psi</td>
</tr>
<tr>
<td>Hardness $^6$ (Gogan)</td>
<td>7-10</td>
</tr>
<tr>
<td>Specific Gravity $^6$</td>
<td>2.9</td>
</tr>
</tbody>
</table>

**Test Procedures**

1. SAE J661
2. ASTM-D 638-91
3. ASTM-D 790-97
4. ASTM-D 695-91
5. SAE J379a
6. ASTM-D 792-91
7. ASTM-D 732-93

1. SAE J661

2. ASTM-D 638-91

3. ASTM-D 790-97

4. ASTM-D 695-91

5. SAE J379a

6. ASTM-D 792-91

7. ASTM-D 732-93
1 Dynamic coefficient of friction measures the ability of the lining to grip the disc for optimum “stopping” performance. From many years of lining development experience, Carlisle has established a recommended coefficient range for optimum performance results. Linings performing in values higher than recommended suggest too aggressive friction material, resulting in excessive disc and lining wear. A too aggressive lining material could also create wheel skid by causing the brakes to actually “lock up” during application. Linings with less than the recommended values may not provide the gripping characteristics to stop the vehicle on a consistent basis.

Of all linings tested, Carlisle demonstrated the greatest consistency for safe, efficient stops in all operating conditions.

2 Lining wear of lining weight loss is the truest measurement of economic value. In each operation duty cycles Carlisle linings showed significantly lower amounts of weight loss – which directly calculates to less downtime and reduced brake system maintenance costs – real Carlisle economics!

3 Disc wear is a factor often overlooked in measuring disc brake maintenance costs. In caliper brake systems, discs are not regarded as a high-wear item, yet if matched with overly aggressive linings, they can significantly contribute to increased repair costs.

Note the high degree of disc wear for all competitive linings. Carlisle linings contributed virtually no wear on discs. Longer disc life – lower maintenance costs – real Carlisle economics!

* Lining failure prior to test completion
### PRODUCT OVERVIEW

<table>
<thead>
<tr>
<th>Caliper Material</th>
<th>Actuation</th>
<th>Mounting</th>
<th>Release Pressure</th>
<th>Lining Material</th>
<th>Lining Area per Brake</th>
<th>Lining Volume per Brake</th>
<th>Disc Thickness</th>
<th>Disc Diameter</th>
<th>Final Assy Weight</th>
<th>Static (New)-K</th>
<th>Static (Worn)-K</th>
<th>Disc Friction Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-strength ductile iron</td>
<td>Spring applied, hydraulically released</td>
<td>Double shear on slide pins</td>
<td>89.6bar-206.8bar / 1,300psi-3,000psi</td>
<td>Non-asbestos or semi-metalic</td>
<td>285.8cm² / 44.3in²</td>
<td>363cm³ / 22.2in³</td>
<td>12.7mm-25.4mm / 0.5in-1.0in</td>
<td>363.0mm-635.0mm / 14.25in-25.0in</td>
<td>31.7kg / 70.0lbs</td>
<td>71,168N / 16,000lbs</td>
<td>Disc Diameter 2-1.22in / 2-31mm</td>
<td></td>
</tr>
<tr>
<td>High-strength ductile iron</td>
<td>Spring applied, hydraulically released</td>
<td>Cantilever mounting on sliding pin; 3/4-10 thread</td>
<td>89.6bar-206.8bar / 1,300psi-3,000psi</td>
<td>Non-asbestos or sintered metallic</td>
<td>102.2cm² / 15.84in²</td>
<td>64.95cm³ / 3.96in³</td>
<td>9.5mm-12.7mm / 0.38in-0.5in</td>
<td>254.0mm-508.0mm / 10.0in-20.0in</td>
<td>16.06kg / 28.8lbs</td>
<td>23,575N / 5,300lbs</td>
<td>Disc Diameter 2-1.0in / 2-25.4mm</td>
<td></td>
</tr>
<tr>
<td>High-strength ductile iron</td>
<td>Spring applied, hydraulically released</td>
<td>Cantilever mounting on sliding pin; 3/4-10 thread</td>
<td>11.7bar-18.6bar / 170psi-270psi</td>
<td>Non-asbestos or sintered metallic</td>
<td>102.2cm² / 15.84in²</td>
<td>64.95cm³ / 3.96in³</td>
<td>9.5mm-12.7mm / 0.38in-0.5in</td>
<td>254.0mm-508.0mm / 10.0in-20.0in</td>
<td>16.33kg / 36.0lbs</td>
<td>23,575N / 5,300lbs</td>
<td>Disc Diameter 2-0.75in / 2-19.05mm</td>
<td></td>
</tr>
<tr>
<td>High-strength ductile iron</td>
<td>Spring applied, air released</td>
<td>Cantilever mounting on sliding pin; 3/4-10 thread</td>
<td>3.1bar - 4.8bar / 45psi-70psi</td>
<td>Non-asbestos or sintered metallic</td>
<td>99.3cm² / 15.4in²</td>
<td>54.77cm³ / 3.34in³</td>
<td>9.5-12.7mm / 0.38-0.5 in</td>
<td>254.0mm-635.0mm / 10.0in-25.0in</td>
<td>9.75kg / 21.5lbs</td>
<td>13,113N / 3,828lbs</td>
<td>Torque(lb-in)=K×Lever Force(lbs)×Disc Friction Radius(in)</td>
<td></td>
</tr>
<tr>
<td>High-strength ductile iron</td>
<td>Spring applied, hydraulically released</td>
<td>Cantilever mounting on sliding pin; 3/4-10 thread</td>
<td>89.6bar-206.8bar / 1,300psi-3,000psi</td>
<td>Non-asbestos / organic</td>
<td>61.6cm² / 9.55in²</td>
<td>39.2cm³ / 2.39in³</td>
<td>7.9mm-12.7 mm / 0.31in-0.500in</td>
<td>203.2mm-508.0mm / 8.0in-20.0in</td>
<td>3.2kg / 7.0lbs</td>
<td>N/A</td>
<td>Torque(N-m)=K×Lever Force(N)×Disc Friction Radius(mm)</td>
<td></td>
</tr>
<tr>
<td>High-strength ductile iron</td>
<td>Ball and ramp</td>
<td>Cantilever mounting on sliding pin; 1/2-13 thread</td>
<td>1,890 N / 425lbs</td>
<td>Non-asbestos or sintered metallic</td>
<td>99.3cm² / 15.4in²</td>
<td>54.77cm³ / 3.34in³</td>
<td>7.9mm-12.7 mm / 0.31in-0.500in</td>
<td>203.2mm-508.0mm / 8.0in-20.0in</td>
<td>3.2kg / 7.0lbs</td>
<td>N/A</td>
<td>Torque(N-m)=K×Lever Force(N)×Disc Friction Radius(mm)</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** 1,890 N (425 lb) maximum input force for RT is actually the APPLY force which generates brake torque, since this brake is not a SAHR (not same as release pressure or force brake).
SELECTED CUSTOMERS

- **SA7000 High Pressure** | Xuzhou KAT | 220hp Tractors | China

- **RT5000** | Dana Spicer, Turner, Carrero axle | Europe

- **RT5000** | MST (Sanko) M542 Backhoe loader (Carrero axle) | Europe

- **SA7000 High Pressure** | Volvo L90 Wheel Loaders | Europe

- **RT5000** | L&T Case (India) Backhoe | India
Carlisle has 50 yrs experience as a strategic partner to its valued customers around the world. We are THE global leader in off-highway braking solutions.

### China
- **Customer:** Shandong Linggong (SDLG)
  - **Application:** 5T, 6T Wheel loaders
  - **Product:** SA7000 High Pressure
- **Customer:** Xuzhou KAT
  - **Application:** 220hp Tractors
  - **Product:** SA7000 High Pressure

### India
- **Customer:** Telecom Hitachi
  - **Application:** 315V Backhoe
  - **Product:** SA7000 High Pressure
- **Customer:** L&T Case
  - **Application:** 770 Backhoe loader
  - **Product:** RT5000
- **Customer:** Caterpillar
  - **Application:** 424 Backhoe loader
  - **Product:** RT5000
- **Customer:** Terex
  - **Application:** TX760 Backhoe loader
  - **Product:** RT5000
- **Customer:** L&T Case
  - **Application:** Backhoe
  - **Product:** RT5000
- **Customer:** Mahindra Defence
  - **Application:** Armoured Vehicle
  - **Product:** RT7000

### Europe
- **Customer:** Volvo
  - **Application:** L90 Wheel Loaders
  - **Product:** SA7000 High Pressure
- **Customer:** Liebherr
  - **Application:** ADT
  - **Product:** SA14000
- **Customer:** Gehl, Manitowoc (Grove)
  - **Application:** Material Handler (Gehl)
  - **Product:** RT5000
- **Customer:** Dana Spicer, Turner, Carrero
  - **Application:** Axle
  - **Product:** RT5000
- **Customer:** MST (Sanko)
  - **Application:** M542 Backhoe loader (Carrero axle)
  - **Product:** RT5000

### Canada
- **Customer:** Hitachi
  - **Application:** 40-60 ton trucks
  - **Product:** SA7000 High Pressure
- **Customer:** Hitachi
  - **Application:** 1100, 1700 (60T, 190T) Mining Truck
  - **Product:** SA14000

### US
- **Customer:** Manitowoc (Grove), Link-Belt
  - **Application:** RT Cranes
  - **Product:** SA7000 Low Pressure
- **Customer:** CNH
  - **Application:** Haybailers
  - **Product:** SA7000 High Pressure
- **Customer:** CAT
  - **Application:** Paving Unit
  - **Product:** SA7000 High Pressure
- **Customer:** Gehl
  - **Application:** Telehandlers
  - **Product:** SA7000 High Pressure
- **Customer:** Manitou
  - **Application:** Telehandlers
  - **Product:** SA2500
- **Customer:** CNH
  - **Application:** Ford New Holland backhoes
  - **Product:** RT5000
- **Customer:** Tigercat Industries
  - **Application:** Feller Buncher
  - **Product:** RT5000
- **Customer:** Interocean Systems
  - **Application:** Marine winch for ships
  - **Product:** RT5000
- **Customer:** CAT Clayton (Europe & Morton)
  - **Application:** CAT 460 backhoe loader
  - **Product:** RT5000

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