

Strategically engineered Solutions.



Building OE-Quality Components.



- *Enhanced Durability And Performance Through Intentional Engineering*

- *OE-Wear Tested Ceramic Friction*

- *OE-Grade Severe Duty New Shoe Kits*

***GeoMetric® Series  
Ceramic New-Lined  
Heavy Duty Brake Shoes***



# SILVERBACK Exceeds the Federal Requirements for Reduced Stopping Distance (RSD)

SILVERBACK prides itself on meeting the rigid standards of new federal Reduced Stop Distance (RSD) regulations.

Independent laboratory testing by Link Engineering of East Liberty, Ohio proved our Silverback High Temp Performance (HTP) excelled in on-vehicle testing for both laden and unladen stop distance requirements.

According to the new requirements, tractors built after August 1, 2011 must stop in 250 feet or less when pulling an empty trailer (laden), and must stop in 235 feet or less without a trailer (unladen).

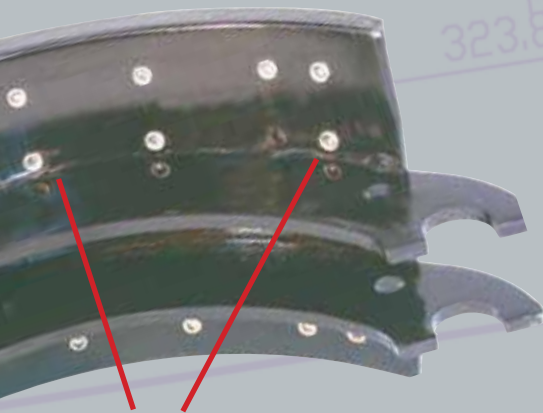
SILVERBACK HTP scored stop distances between 180 and 245 feet.

**Silverback RSD brakes are certified to stop 24% shorter than required!**

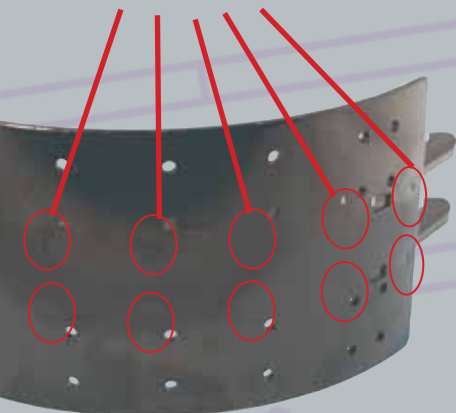


New Reduced Stop Distance (RSD) regulations require three axle tractors to stop in 250 ft or less when laden with a trailer (pictured above), and 235 ft or less for tractors unladen (not pulling a trailer).

Compliance Date	Vehicle Configuration	Gross Vehicle Weight Rating (lbs)	NEW Stop Distance Laden Unladen	Pre-2012 Stop Distance	Percentage Reduction
ALL	Buses	10,000+	280	280	Unchanged
Aug. 1, 2011	3 Axle Tractor	0-59,000	250 235	355 335	30%
Aug. 1, 2013	2 Axles	ALL	250 235	355 335	30%
	3 Axles	59,601-70,000	250 235	355 335	30%
		70,001+	310	355	13%
	4 or more Axles	0-85,000	250	355	30%
85,001+		310	355	13%	



Eight stitch welds, combined with 16 top welds bi-directionally reinforce the thicker table. This combination prevents bowing, towing, and twisting.



## SILVERBACK<sup>®</sup> Built for Severe Duty

Silverback GeoMetric<sup>®</sup> new shoes use advanced structurally reinforced welding techniques that assure each shoe meets or exceeds OEM specifications for sheer strength. Four stitch welds per web, coupled with 16 top welds, exceed industry specifications for bi-directional torsional reinforcement.

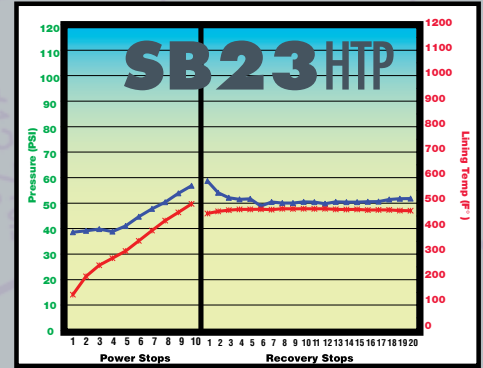
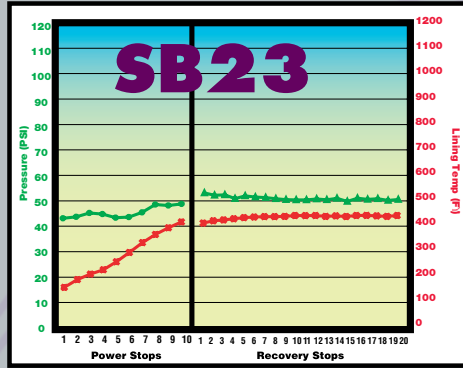
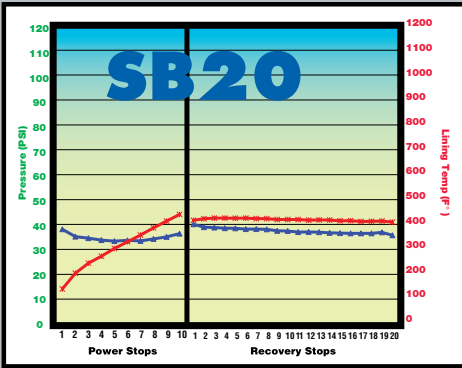
Both cam and anchor ends are heat-treated to more than 1000° F to match the heat-treating of mating components.

Electro-deposition coating magnetically adheres paint to the metal to ensure a **lifetime warranty against rust-jacking.**



Both cam and anchor ends are heat-treated to more than 1,000° F to prevent disfiguring and loss of brake geometry. This extends brake life and improves braking performance.

# COOLER BRAKES, LONGER LIFE

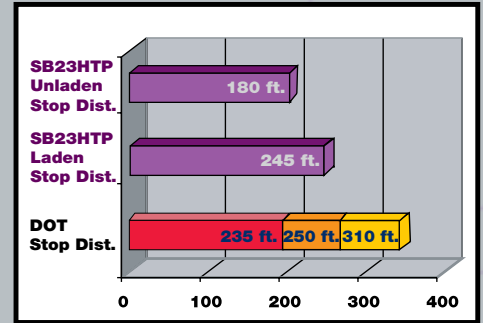
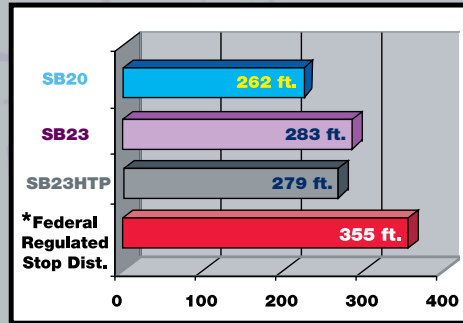
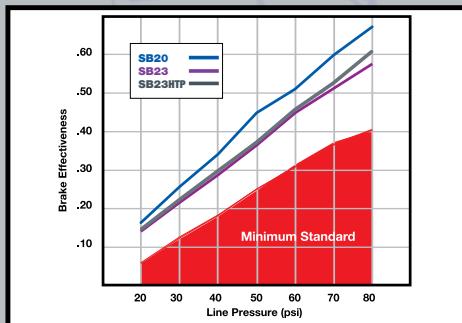


<b>Chase Rating:</b> FF (.35-.40)	<b>Gogan Hardness:</b> 310-345 MPa
<b>Axle Load:</b> 20,000 lb GAWR	<b>Tensile Strength:</b> 5.2
<b>Shoe Size:</b> 4515Q 16.5 x 7"	<b>Temperature Range:</b> 612°F
<b>Slack Adjuster Length:</b> 5.5"	<b>Specific Gravity:</b> 2.15
<b>Brake Chamber:</b> 30"	<b>Normal Temperature:</b> 300°F
<b>AL Factor:</b> 165	<b>High Temperature:</b> 686°F
<b>Rolling Radius:</b> 19.6"	<b>Testing:</b> FMVSS121 Approved
<b>RP628 Equivalent:</b> 66,120	SAEJ661 Chase

<b>Chase Rating:</b> FF (.36-.43)	<b>Gogan Hardness:</b> 290-330 MPa
<b>Axle Load:</b> 23,000 lb GAWR	<b>Tensile Strength:</b> 5.5
<b>Shoe Size:</b> 4707QP 16.5 x 7"	<b>Temperature Range:</b> 632°F
<b>Slack Adjuster Length:</b> 5.5"	<b>Specific Gravity:</b> 2.25
<b>Brake Chamber:</b> 30"	<b>Normal Temperature:</b> 312°F
<b>AL Factor:</b> 165	<b>High Temperature:</b> 712°F
<b>Rolling Radius:</b> 19.6"	<b>Testing:</b> FMVSS121 Approved
<b>RP628 Equivalent:</b> 66,252	SAEJ661 Chase

<b>Chase Rating:</b> FG (.38-.47)	<b>Gogan Hardness:</b> 300-340 MPa
<b>Axle Load:</b> 23,000 lb GAWR	<b>Tensile Strength:</b> 5.4
<b>Shoe Size:</b> 4707QP 16.5 x 7"	<b>Temperature Range:</b> 662°F
<b>Slack Adjuster Length:</b> 5.5"	<b>Specific Gravity:</b> 2.23
<b>Brake Chamber:</b> 30"	<b>Normal Temperature:</b> 482°F
<b>AL Factor:</b> 165	<b>High Temperature:</b> 752°F
<b>Rolling Radius:</b> 19.6"	<b>Testing:</b> FMVSS121 Approved
<b>RP628 Equivalent:</b> 67,752	SAEJ661 Chase

## Superior Torque = Reduced Stopping

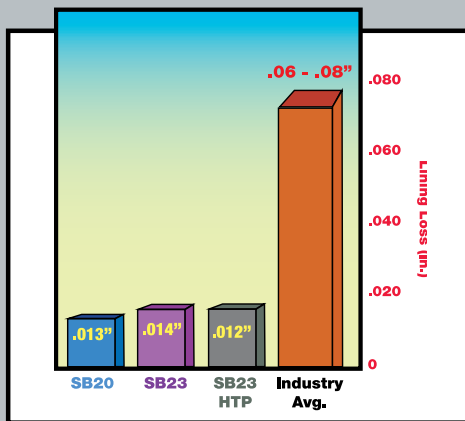


Silverback ceramics demonstrate consistent brake effectiveness and torque output for safe braking under severe conditions.

Pre-2012 Stop Distances have always been outperformed by Silverback ceramics using 7" wide brakes. Ideal for older fleets and trailers.

For vehicles built to 2012 stop distances of 310 feet (for multi-axle trucks carrying 70,000+ pounds) or 250 feet for loaded tractor-trailers (235 feet unladen), Silverback brakes exceed all stop requirements.

## Improved Lining And Drum Wear

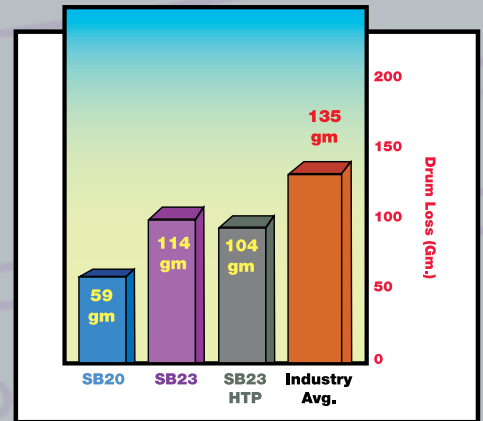


Silverback low-abrasion ceramic continues the performance trend of showing one-fifth the lining wear of the industry average for semi-metals.

All data compiled for Silverback friction is derived from independent laboratory testing using OEM guidelines of a 165 AL Factor on a 16.5" x 7" shoe.

Stopping distances are calculated using the Equation of Motion based on 40 psi stopping data.

Torque and line pressure data is compiled using data averages from independent laboratory testing for FMVSS121(d) certification.



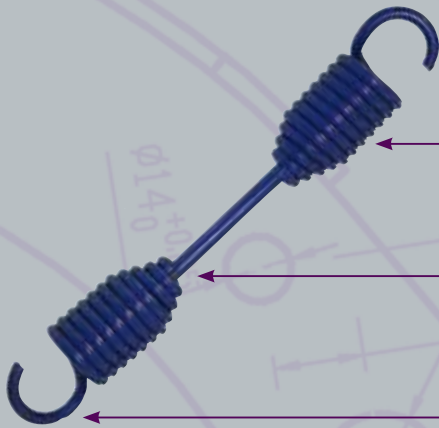
Silverback low-abrasion ceramic continues the performance trend of yielding 15% - 56% less drum loss than industry average.

# Silverback GeoMetric® Series Hardware Kits

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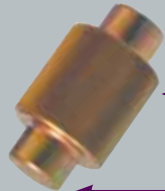


Heat-treated return spring hooks increase reliability and reduce brake application failure.

Silverback return springs have the highest coil count in the industry (10.5), and provide 120 lbs of tension, more than economy springs.

Heavy duty crossbars maintain spring integrity, even in severe duty applications.

Electro-magnetic powder coating provides superior corrosion protection.



Heat-treated to HRC60 to match OE S-cam hardness.

Cam rollers are engineered with wide pattern knurling to grip cam and release sediments.

Zinc dichromate plating provides superior corrosion protection.



Heat-treated to HRC60 to preserve brake geometry.

White zinc plating prevents rusting in spider.



High grade steel zinc coated bushings.



High tensile strength wire.



Spring Retainer is heat-treated for extended durability.

- Double OEM cycle testing specifications to reduce brake drag.
- Up to 50% more tension.
- Heat-treated spring hooks reduce spring failure.
- Heat-treated cam rollers to HRC 60 eliminate flat spots.
- Heat-treated anchor pins controls "brake walk."
- Increased quality reduces maintenance intervals.

- **Ensures Brake Geometry**
- **OE-Grade New Shoes and Hardware Kits**
- **Bi-Directional Reinforced Welding improves shoe to drum contact**
- **E-Coating Prevents Rust-Jacking**
- **Lifetime Rust-Jack Warranty**
- **Higher Torque, Denser Friction, Quieter Braking and Longer Life**
- **Improved Friction and Drum Performance**
- **FMVSS121 Tested and Approved to Meet or Exceed Federal Stop Distance Requirements**

# What is Intentional Engineering?

Intentional Engineering is how Silverback assures that you receive the highest quality brake and wheel end components that reduce your Cost Per Mile, by reducing wear and maintenance.

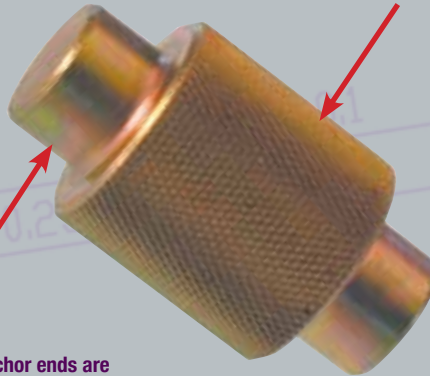
We match our manufacturing specifications to make sure that mating parts don't cause unnecessary wear.

Some of our Intentional Engineering specs include:

- Harmonized Heat-Treating
- Mating Concentricity Standards
- OE-specified materials and coatings



All Silverback S-cams and cam roller barrels are Intentionally Engineered to a heat-treat specification of Rockwell 60C. This reduces wear on both parts.



Silverback brake shoe cam and anchor ends are heat-treated to an Intentional Engineering specification to match the heat-treating on cam roller shoulders. This preserves brake geometry.



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Building OE-Quality Components.



## OE-Grade New Ceramic Wheel Kits Available in These FMSI Numbers

Width	Diameter	Front/Rear	Axle Manufacturer	*Frictions Available	Wheel Kit Brake #
<i>(When ordering, create part # using desired friction available in place of * ie. WK1308E-20KSB)</i>					
4	15	Front	Dana/Eaton	20K, 23K	WK1308E-*SB
4	15	Front	Meritor	20K, 23K	WK1308Q-*SB
4	15	Front	Dana/Eaton	20K, 23K	WK1443E-*SB
4	15	Front	Meritor	20K, 23K	WK4702Q-*SB
4	15	Front	Dana/Eaton	20K, 23K	WK4729ES2-*SB
5	15	Front	Meritor	20K, 23K	WK4703Q-*SB
5	16.5	Front	Meritor	20K, 23K	WK4524Q-*SB
5	16.5	Front	Mack	20K, 23K	WK4524QR-*SB
5	16.5	Front	Dana/Eaton	20K, 23K	WK4719ES2-*SB
5	16.5	Front	Meritor	20K, 23K	WK4720Q-*SB
6	15	Front	Meritor	20K, 23K	WK4704Q-*SB
6	16.5	Rear	Meritor	20K, 23K	WK4514Q-*SB
6	16.5	Front	Mack	20K, 23K	WK4514QR-*SB
6	16.5	Front/Rear	Meritor	20K, 23K	WK4715Q-*SB
6	16.5	Front	Dana/Eaton	20K, 23K	WK4725ES2-*SB
7	15	Front	Meritor	20K, 23K	WK4705Q-*SB
7	16.5	Rear	Dana/Eaton	20K, 23K	WK4311E-*SB
7	16.5	Rear/Trailer	Meritor	20K, 23K, 23KHTP	WK4515Q-*SB
7	16.5	Trailer	Fruehauf/Propar	20K, 23K	WK4515XEM3-*SB
7	16.5	Rear/Trailer	Meritor	20K, 23K, 23K HTP	WK4707Q-*SB
7	16.5	Front	Mack	20K, 23K	WK4707QR-*SB
7	16.5	Rear/Trailer	Eaton	20K, 23K, 23K HTP	WK4709ES2-*SB
7.5	12.25	Trailer	Dexter	20K, 23K	WK4591DX-*SB
7.5	12.25	Trailer	Stan. Forge	20K, 23K	WK4591SF-*SB
7.5	12.25	Trailer	Meritor	20K, 23K	WK4670Q-*SB
7.5	12.25	Trailer	Dana/Spicer	20K, 23K	WK4692Q-*SB
8	16.5	Rear	Meritor	20K, 23K, 23K HTP	WK4718Q-*SB
8.625	15	Rear	Meritor	20K, 23K, 23K HTP	WK4710Q-*SB
8.625	16.5	Trailer	Meritor	20K, 23K	WK4551Q-*SB
8.625	16.5	Rear/Trailer	Meritor	20K, 23K, 23K HTP	WK4711Q-*SB
8.625	16.5	Rear/Trailer	Dana/Eaton	20K, 23K, 23K HTP	WK4726ES2-*SB

SILVERBACK	Abex	Bendix	Haldex	Marathon	Meritor	Stemco
<b>SB20</b> 20K, 165 AL Factor	6008	BA201	GF3006	UB	MA212	Crest XL
<b>SB23</b> 23K, 165 AL Factor	685	BA231	GG3020	DB, FLOE	MA312	Vista HP
<b>SB23HTP</b> 23K, 165 AL Factor	6098	BA232	GH3023	HS	MA310	Ultra Peak

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