Our Police System

Today’s modern Police brake systems do more than just stop your vehicle. Safety features such as traction control, stability control and brake force distribution are electronically integrated. Such technology demands application-specific brake components designed to keep the vehicle operating at maximum performance. Diligently researched and tested, the Raybestos® brand police-specific brake system is the first of its kind. Whether on patrol or in pursuit, our formulated pads, rotors and calipers are designed to keep police vehicles operating safely and efficiently.

Attempting to match OE is where most manufacturers stop. With Raybestos brand police friction this is just the beginning. Each set of brake pads must pass stringent safety and performance requirements along with achieving exceptional Noise, Vibration & Harshness (NVH) Control characteristics before being sold in the marketplace.

Ensuring officer safety on the road while continuously exceeding performance expectations - no other brand of Police friction guarantees a higher level of professional confidence.

• R&D Formula Development
  Includes initial developmental dynamometer along with track and on-car testing analysis

• Fleet Testing
  • Over 1 million miles of fleet validation testing before material release
  • Testing and evaluation by selected Police agencies

• 3rd Party Testing Accreditation
  • D3EA® PPSV® Certification
  • SAE J2521 Noise Test
  • LASD dynamometer simulation

• Ongoing Quality Control
  Daily production auditing and monthly product sampling

• Meeting or Exceeding the OE Standards for Excellence
  ISO/TS 16949-2002 Certification of Accreditation has been earned for every Raybestos brand friction manufacturing facility
THE RAYBESTOS® BRAND POLICE SYSTEM

Police work is about reaction. Officers don't calculate minutes and hours - they react in blinks of an eye. Produced with Advanced Technology® formulations, our Police-formulated line of brake pads, rotors and calipers deliver industry-leading performance. Created to reduce overall cost per mile while maintaining peak performance levels at high temperatures, we’ve spent years researching and testing this system so that, whether on city streets or in high-speed pursuits, Police officers can react in an instant.

RAYBESTOS BRAND ADVANCED TECHNOLOGY POLICE DISC BRAKE PADS
- Pad compounds designed specifically for police applications
- Only aftermarket Police pad that is D3EA® PPSV® certified
- Rubber-coated abutment clips for quiet braking
- Enhanced pad formulation reduces cost per mile

RAYBESTOS BRAND ADVANCED TECHNOLOGY POLICE ROTORS
- Damped iron metallurgy reduces vibration and suppresses noise
- Specialized vane configuration increases air flow cooling the rotor
- Specific weight for police use better dissipates heat
- Polymer coating serves as “coat of armor” against elements

RAYBESTOS BRAND ADVANCED TECHNOLOGY POLICE LOADED CALIPERS
- High-temperature silicone boot prevents melting and overheating
- Silicone can withstand double the temperature of normal EPDM rubber for a sustained period of time
- Pre-loaded with Police Formulated Friction

System (sis-tuhm) n. A group of interacting elements forming a complex whole.

This is a brake system unlike any in the industry. Each element of the Raybestos Police System will enhance vehicle performance. However, true system harmony is best attained when the Police pads, rotors and calipers are allowed to work together in unison.
Raybestos Police disc brake pads feature OE style shim(s), slot(s) and chamfer configurations that meet or exceed OE designs.

**SHIMS**
We select the correct shim material and attachment method for each application to ensure the shims perform as intended, reducing noise, vibration and harshness for the life of the pads. Installed on all applications, they often improve on the OE design.
- A wide range of shim materials provides the best match for each application
- Orbital riveted, spring lock and thermally bonded attachment methods keep the shims in place for the service life of the friction

**SLOTS**
Allow for flexing of the friction material which can reduce noise and also allows for gas release. The slot style used on Raybestos brand friction products follows or improves upon the OE design. Raybestos brand friction application specific slot configurations include:
- Single center slot
- Diagonal slot
- Dual slots
- Dual Diagonal slots
- Offset slot

**CHAMFERS**

**Standard Chamfers**
The edges of the chamfer at the friction face are parallel to each other.

**Compound Chamfers**
Some applications require a compound chamfer. The type is angled on both the leading and trailing edge of the pad and is perpendicular to the rotor surface.

Both chamfers are uniquely designed to assist in reducing brake vibration and overall noise.

**STEEL PLATES**
Mechanical Attachment
- Unmatched sheer strength for severe duty and problematic applications
- Up to ten times the shear strength VS traditional steel plate designs.
- Reduces potential flex and plate distortion of the pad. Avoids cracked friction material, and improves NVH characteristics

**Shaved Abutment Surfaces**
- Specified by OE Manufacturers
- Consistent flat surface at the points of contact between the brake pad and caliper assembly
- Tighter tolerances promote free movement of the pads in the caliper assembly and reduce noise occurrences

Every year, the Sheriff’s Department of Ingham County, Michigan, puts Raybestos® brand Police friction through the ultimate pursuit driving test.

The Ingham County Sheriff’s Department, in cooperation with the Lansing Police Department and other law enforcement agencies, conducts a High Speed Pursuit Driver Training Program at a course designed for officer training. For 11 weeks, nearly 200 officers learn a variety of high speed braking maneuvers – averaging 40 to 50 brake applications in a four mile run. Speeds exceed 100 MPH with a series of continuous high speed braking maneuvers.

Our involvement with Ingham County allows us to test alternate friction products under the most extreme operating conditions. This testing event gives us firsthand development input into our Police formulas.

In the effort of continuous improvement, we are continuously upgrading our materials based on ever-changing vehicle requirements. Our current Police friction material is the latest generation to be tested and validated.

Ingham County specifies ONLY Raybestos Police friction for their test and patrol vehicles.
RAYBESTOS® BRAND POLICE DISC BRAKE PADS
Raybestos brand Advanced Technology® Police disc brake pads are designed specifically for police patrol and pursuit applications. These Police pads utilize special materials to provide exceptional stopping power, temperature stability and to provide “Quiet on Arrival” (QOA®) noise-free braking performance. This exceptional product is the brand of choice as specified by numerous police agencies throughout North America.

- Police-specific formulations avoid high temperature fade
- Slots and chamfers optimize cooling and suppress noise
- Quiet Clips™ (rubber coated abutment clips) for quiet braking
- High-technology noise dampening shim materials
- Police badge logo identifies product as: Police use only
- High temperature Silicone-lubricant featuring PTFE provides optimum lubrication
- QOA formula ensures you’ll arrive at every call without brake noise

Noise, Vibration & Harshness (NVH) Control
Advanced Technology Hardware Designs
Today’s brake designs have advanced from hardware attached to the pad itself, to designs that interface between caliper and bracket. These (abutment style) clips are critical to proper operation and quiet performance. These types of components should be replaced during every brake service. Knowing their importance, we’ve included abutment hardware with all Advanced Technology Police brake pad sets. But we didn’t stop there. All police pad sets feature rubber-coated abutment clips to maximize noise suppression.
The police rotor is an evolving generation product in our highly successful Advanced Technology family. The Raybestos brand has engineered specific metallurgy advances into the Police rotor that has raised the level of performance and expectation needed to support successful law enforcement operation. Braking requirements are complicated on police vehicles. Equipment, safety and performance demands heighten the need for dependability. No other rotor available to Law Enforcement can match our Quiet on Arrival Police rotor.

Rick Woodside, Director Rotor and Drum Development, Affinia

Raybestos® brand police rotors featuring “Quiet on Arrival” (QOA®) technology are the ultimate performance solution for today’s Law Enforcement vehicles.
RAYBESTOS® BRAND POLICE ROTORS

Law Enforcement agencies demand performance, stealth and dependability in the patrol vehicles they operate on city streets. With that in mind, Raybestos brand “Quiet on Arrival” (QOA®) Advanced Technology® rotors are engineered for superior performance and deliver unmatched stopping power, cooling properties and noise control.

Superior Metallurgy
Our dedicated engineers have improved upon the “one metallurgy fits all” theory. QOA Technology rotors are cast from damped iron - an alloy that is metallurgically formulated to disrupt vibration and suppress noise ensuring consistent and quiet arrivals every time.

Enhanced Vane Configuration
Specifically designed for increased air flow throughout the rotor, the QOA rotor maintains lower temperatures with a vane configuration no other competitive rotor in the market can match.

Optimized Weight
When police vehicles make sudden high-speed stops, weight distribution and temperature are inherently high on the front wheels. Recent fleet testing has revealed a replacement ratio of 3:1 between front and rear rotors. Raybestos QOA Advanced Technology rotors used on both the front and the rear provide outstanding braking characteristics and performance whether on patrol or in pursuit.

Coat of Armor
Subjected to environmental conditions such as heat, cold, ice, snow and rain, durability is a critical aspect of police rotors. This polymer binding coating has special armor-type shielding characteristics that provide significantly greater protection against the elements.

Police specific vane configuration enhances cooling air flow throughout the rotor allowing for optimal heat dissipation - something quite important during pursuit driving.
Hard turns, hard on the brakes, high rates of speed - this testing wears and tears on vehicle components helping us determine where to focus our attention during repair work. However, I’ve never seen anything that works the way Raybestos brand Police friction does. In this day and age with budgetary constraints we have to get the best and longest-lasting products we can with the money we spend. We’ve tried an awful lot of brake products at Ingham County - tested just about everything there is to test - and Raybestos Police friction has always been the answer. Their product is far superior and they’re always striving to make it better.

Steven DeKett, Master Mechanic, Ingham County Sheriff’s Office

Silicone dust boots in Raybestos® brand loaded calipers can withstand double the heat of traditional EPDM rubber for a sustained period of time... that’s staying cool under pressure.
Produced with specialized high-temperature silicone, Raybestos Advanced Technology® Police loaded calipers are built to satisfy every braking situation, including high-speed pursuits. Loaded with premium Raybestos brand Police disc brake pads, our calipers deliver reliable performance officers can depend on day after day.

- High-temperature silicone boot prevents overheating and melting
- Silicone withstands double the temperature of a typical EPDM rubber boot for a sustained period of time
- Pre-lubrication of critical components with high-temperature synthetic lubricant
- Remanufactured with new bleeder screws, mounting bolts, sleeves and copper washers
- New phenolic pistons (where OE is phenolic) and mounting brackets (where applicable)
- “Quiet on Arrival” (QOA®) technology ensures quiet arrival on scene

During the most intense high-speed police pursuit, temperatures inside a braking system can exceed 600° F. More and more departments are reporting “thermal events” where the dust boots assembled in their cruisers are overheating and melting. Generally, a typical EPDM rubber dust boot can only withstand temperatures up to 300° F and for only brief periods of time. This is a problem.

The high-temperature silicone dust boot in every Raybestos Police-Pursuit Loaded Caliper can withstand double the temperature of a traditional EPDM rubber boot, up to 600° F, for a sustained period of time.

In addition, every Raybestos brand Police caliper is loaded with our Advanced Technology Police disc brake pads.

**HIGH-TEMPERATURE SILICONE**

The high temperature silicone boot used in every Raybestos® brand Police caliper can withstand temperatures up to 600° F.

**Traditional EPDM rubber boots can only withstand temperatures up to 300° F before overheating or melting.**

**Tested at 500° F for 4 hours.**

Results: SilicOne boot remained flexible with no deterioration.

Conclusion: Sustained performance under pressure.

**Tested at 500° F for 4 hours.**

Results: Melted EPDM rubber boot has hardened and is ready to flake.

Conclusion: Replacement necessary.
THE FIRST COMPLETE POLICE BRAKE SYSTEM ON THE MARKET

“This is a unique line developed specifically for police applications. Today, looking at D3EA PPSV certification, specifically with aftermarket materials, there is one brand that is certified and that’s Raybestos. There is no competitor in the marketplace providing that level of certification today.”

– Terry Kloster, Police Friction Product Engineer

The Only Aftermarket Brand to Earn D3EA® PPSV® Certification

Dual Dynamometer Differential Effectiveness Analysis (D3EA) Police and Public Service Vehicle (PPSV) Certification is the only voluntary, objective and completely independent validation process for replacement brake friction materials that provides a basis for maintaining compliance with new vehicle Federal Motor Vehicle Safety Standards (FMVSS) requirements.

PPSV certification captures the critical system level performance characteristics of police and has established performance requirements that may surpass those imposed by Original Equipment Manufacturers (OEM’s).

Based upon leading edge laboratory test technology and data analysis, PPSV certification utilizes independently administered, state-of-the-art dual-end brake dynamometer testing. PPSV certified replacement brake friction material parts are validated in match sets (front brake and rear brake parts are tested together) and meet or exceed performance requirements based on Federal Standards for new vehicles.

“Speed Rated” PPSV products have been subjected to the high-speed performance requirements of FMVSS 135. Replacement brake parts bearing the “Speed Rated” PPSV seal have met stringent, objective requirements for effectiveness, fluid displacement and service brake pedal force gain (pedal force and pedal travel) while being exposed to elevated operating temperatures.

Nothing is more critical than the braking performance of Police vehicles. To assure these systems perform properly, look for the D3EA PPSV Certified Seal when servicing your police patrol vehicle.

Validated With Los Angeles Sheriff’s Department (LASD) Dynamometer Simulation Test

Another procedure used to prove our materials is the LASD dyne test. It is run by an independent testing facility on a single ended inertia-dynamometer. It will simulate the LASD “Law Enforcement Vehicle Test” utilized for publishing test results to agencies across North America. It features high-speed sections that simulate police pursuit conditions.

Nationwide Police Fleet Testing

We work with several police fleets to evaluate the performance of our materials for comparison against market competition. The Raybestos® brand police material has been fleet tested to over 1 million miles before market release. This validates the testing and research done to this product to ensure proper brake operation.

Ingham County Sheriff’s Testing Grounds
WARNING: This part should be installed by a qualified mechanic only in accordance with the application(s) specified in our product catalog.
THE FIRST COMPLETE POLICE BRAKE SYSTEM ON THE MARKET. 
THE ONLY AFTERMARKET BRAND TO EARN D3EA® PPSV® CERTIFICATION.

POLICE-FORMULATED 
FRICITION

EXCLUSIVE POLICE 
ROTORS

HIGH-TEMP POLICE 
CALIPERS

ON PATROL OR IN PURSUIT, THE RAYBESTOS® BRAND POLICE BRAKE SYSTEM REDUCES OVERALL COST PER MILE AND REMAINS QUIET ON ARRIVAL.

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