Rubber Track Systems and Components Engineering for Defense Vehicles
EXPERIENCE AND EXPERTISE

Founded in 1967 the Soucy Group has grown into a leading designer and manufacturer of plastic, rubber and metal components for recreational, industrial, agricultural and defense vehicles.

We are recognized for our global leadership in rubber track systems and the development and production of vehicle parts and accessories.

Part of the Soucy Group, Soucy Defense has developed a keen expertise in rubber track solutions for defense applications in vehicles weighing up to and exceeding 40 tonnes.

Benefiting from the broad expertise of the entire Soucy Group family of companies, Soucy Defense offers a wide array of possibilities in innovation, design and manufacturing of key components for defense vehicles.
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THE SOUCY GROUP

The Soucy Group is a private corporation founded by Mr. Gilles Soucy in 1967. Each of our subsidiaries has developed a specific area of expertise and employs highly skilled personnel offering unique solutions to complex problems in very short timeframes.

In partnership with our clients, we define, design and manufacture various components for leading manufacturers of recreational, industrial, agricultural and defense vehicles. Although very different in form and function, all of the parts we produce are the results of our commitment to quality and meticulous work methodologies.

1967  1,500  100+  500+
COMPANY CREATION  EMPLOYEES  ENGINEERS AND CHEMISTS  NEW PRODUCTS EVERY YEAR

SOUCY’S TRACK RECORD  Mass production of rubber tracks for:

<table>
<thead>
<tr>
<th>Year</th>
<th>Snowmobiles</th>
<th>Small Industrial Vehicles</th>
<th>Skid Steer Loaders</th>
<th>Light Weight M113 FOV Articulated Defense Articulated Vehicles</th>
<th>Medium Weight M113 FOV Articulated Defense Articulated Vehicles</th>
<th>Heavy Weight Articulated Articulated Articulated Vehicles</th>
<th>All-Terrain Vehicle Conversion Kits</th>
<th>Tractor Conversion Kits</th>
<th>Combine and Trailer Conversion Kits</th>
<th>Heavy Weight Combat Vehicles 35 mT</th>
<th>Medium Weight Combat Vehicles 35 mT</th>
<th>Heavy Weight Combat Vehicles 39 mT</th>
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Thanks to its unique combination of manufacturing expertise and innovative culture, the Soucy Group is renowned for its capacity to understand client needs and dedicate its full range of resources to ensuring project success. By combining the skills and expertise of all Soucy Group subsidiaries, the organization is able to deliver the value of a one-stop shop experience for any project.
STRONGER
FASTER
LIGHTER

RUBBER TRACK TECHNOLOGY

DID YOU KNOW?

That after introducing rubber track on defense vehicles in 1988, Soucy Defense is still the only certified supplier of rubber tracks for armoured vehicles applications.

Photo credit: CV90 - BAE Systems
INCREASED SURVIVABILITY

The main benefit of choosing rubber track instead of steel track in military applications is an incredible degree of weight savings. With the weight of the track reduced by almost 50 percent, vehicle designers can add more mission-critical components such as armor and other protective equipment without impacting vehicle mobility and combat weight budgets.

The added protection is critical to both the survival of the vehicle crews and the performance of the vehicle itself in hostile environments.

Rubber tracks drastically reduces the overall noise signature of the vehicle up to 13.5 dB reducing the risk of detection by hostile forces.

DRIVING PERFORMANCE

Rubber tracks will significantly increase vehicle performance and mission effectiveness in three major areas:

**Braking Distance** is greatly reduced on all terrain types (ice, snow, mud, hard surfaces). Rubber track tread design and compounds allow it to outperform steel tracks.

**Maximum Speed** – Rubber track can withstand high speed for a longer period while increasing the very top speed of the vehicle by 8-10 km/h.

**Acceleration** – Increased by 15 to 25% depending of the type of soil and vehicle.

DID YOU KNOW?

**MINE BLAST PROTECTION**

A rubber track won’t shatter the same way a steel track will when triggering an anti-personnel mine. Secondary projectiles caused by a mine strike are surpressed and drastically reduces risk of colateral damage.
Thanks to the major weight reduction and reduced vibration levels, rubber track delivers key savings:

**REDUCED OPERATING COSTS**

Fuel consumption reduced by up to 25 percent, due to major weight-related rolling resistance.

<table>
<thead>
<tr>
<th></th>
<th>Steel track</th>
<th>Rubber track</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel consumption</td>
<td>1.333 km/liter</td>
<td>1.777 km/liter</td>
</tr>
<tr>
<td>Life consumption</td>
<td>(150,000 km) = 112,528 liter</td>
<td>(150,000 km) = 84,412 liter</td>
</tr>
</tbody>
</table>

* Data are the results of fuel consumption tests on an M113.

Up to 70 percent less vibration resulting in reducing the ill effects to on board electronics and munitions.
With significant noise and vibration reduction, rubber track provides vehicle crew with notable benefits in terms of comfort and general health, leading to improved combat readiness and mission effectiveness.

By reducing vibration by up to 70%, rubber track greatly increases driving comfort and health of the vehicle crew. Scientific breakthrough in rubber track technologies and its application to armoured fighting vehicles has allowed to enhance crews comfort in demanding hostile environments. Combat readiness levels of the mechanized forces can drastically be increased.

13.5 dB NOISE REDUCTION

Up to 13.5 dB noise reduction.
- Increase communication effectiveness
- Reduce detection by opposing forces

DID YOU KNOW?

CREW ENDURANCE
Troops can travel in vehicles equipped with rubber tracks for an average of 10 continuous hours compared to 1.5 hours in a vehicle equipped with steel tracks.
MOBILITY

With the integration of rubber track to an armoured vehicle, overall gross vehicle weight and track inertia is reduced. Design of the track profile also allows for reduced ground pressures. Tactical mobility and agility is affectedly increased allowing optimized operation over the wide spectrum of conflict and environmental conditions.

INCREASED RELIABILITY AND REDUCED LIFE CYCLE COSTS

Rubber track systems use composite technology to fully integrate all conventional track functions into a one-piece seamless track. Replacing the traditional steel track end connectors, the rubber track continuous steel cords eliminate the need for constant end connectors inspection, frequent track tensioning and occasional track link removal. Hundreds of continuous steel cords, enough to lift several vehicles, strategically imbedded in rubber and protected by steel mesh and fabric, are defeating any risks of random track separation.

External tread wear is minimised with an optimized tread surface area, reduced ground pressure and advanced rubber compound technologies. This results in a virtually maintenance-free track system that has nothing to envy to the numerous conventional track pad replacements. Reduced life cycle costs and increased operational availability becomes a force multiplier in a theatre of operations.

COMPONENT DURABILITY

The fully rubberized track road wheel path has proven to triple the road wheel tyre durability. The drive sprocket can either be made of a lightweight UHMW-PE plastic and metal assembly or made of a full cast iron construction, providing more durability than any track system can offer. The optional split idler wheel provides an easy track installation, self-cleaning capacity and track-matching-durability, contributing to an easy logistic and a turnkey solution.
TREADS
- Maximized traction and wear resistance.
- Minimized ground pressure and heat generation.
- Increased ground contact and optimized mud evacuation shape.
- Wear limit indicator.
- Chamfer to increase steering ability.

GUIDE LUGS
- Optimized for road wheel engagement and de-tracking resistance.
- Guide horns designed with high abrasion resistance rubber.

DRIVE LUGS
- Internal drive lugs are designed for maximum drive sprocket engagement to produce optimal torque transfer during maximum tractive effort, heavy turning or hard braking.
Soucy has developed a track solutions for a wide spectrum of Defense vehicles. Whether a new or reconditioned fleet, a proven rubber track exists for easy integration to existing suspension and driveline components.

<table>
<thead>
<tr>
<th>TYPICAL VEHICLE</th>
<th>TRACK PIN</th>
<th>TRACK WIDTH (MM (IN))</th>
<th>10 tonnes</th>
<th>15 tonnes</th>
<th>20 tonnes</th>
<th>25 tonnes</th>
<th>30 tonnes</th>
<th>35 tonnes</th>
<th>40 tonnes</th>
<th>45 tonnes</th>
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<td>04-HAG-A1</td>
<td>620 (24.4)</td>
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<td>BVS-10+</td>
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<td>BRONCO WARTHOG</td>
<td>04-STAA-4-68-1</td>
<td>600 (23.6)</td>
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<td>M113 A2</td>
<td>04-M113-2</td>
<td>381 (15.0)</td>
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<td>BRADLEY WARRIOR</td>
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<td>558.8 (22.0)</td>
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<td>LEOPARD 1 AJAX</td>
<td>1SD271</td>
<td>584.2 (23.0)</td>
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METRIC TONNES  6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

LEGEND:
- 5 ROAD WHEEL STATIONS
- 6 ROAD WHEEL STATIONS
- 7 ROAD WHEEL STATIONS


**MAINTAINABILITY**

To ensure operational availability, a track system must be maintained at the lowest tactical level on the battle space. Soucy’s track system is designed with simplicity in mind with almost all maintenance tasks executed by the vehicle crew.

Compared to other track solutions, rubber tracks are virtually maintenance free. There are no track pads to be replaced, no end connectors or center guides to be torqued daily or replaced. This translates into major time savings for the crew.

**SUPPORTING NEW EQUIPMENT (MILITARY ECHELON SYSTEM)**

<table>
<thead>
<tr>
<th>THEATRE OF OPERATIONS</th>
<th>Strategic Level 1000s kms</th>
<th>Operational Level 100s kms</th>
<th>Tactical Level 100s – 10s kms</th>
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<tbody>
<tr>
<td><strong>Industrial Base</strong></td>
<td><strong>Easy Field Installation Tool Kit</strong></td>
<td><strong>Battlefield Damage Repair Kit (Limp Home Solution)</strong></td>
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<td>Military Equipment</td>
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<td>Managers / Vehicle OEMs</td>
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**INTEGRATED LOGISTICS SUPPORT**

**LOGISTIC SUPPORT ANALYSIS**

The mobility of an armoured vehicle is mission critical. Soucy takes extra pride in having developed a rubber track integration plan for its clients with supportability in mind. Client maintenance concepts are analysed to easily integrate a logistic support package to implement and maintain the rubber track system.

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**INFLUENCE DESIGN (ILS) - Design Action Cycle**

- **Prime System Engineering Design**
  - Logistics Support Analysis:
    - ILS Influence Design Upfront
    - Ensure Supportability and Maintainability
  - Client Support Package:
    - Client and Track Maint Concept
    - How long will it last (MTBF)?
    - How will it break... (FMECA)?
    - How will it repaired... (LORA)?
    - Reference for all ILS elements

---

**THEATRE OF OPERATIONS**

- **Strategic Level 1000s kms**
- **Operational Level 100s kms**
- **Tactical Level 100s – 10s kms**

**Scan here to see the Repair Kit Installation Video.**
INTEGRATION / TRAINING / SERVICES

Whether it is an initial product testing or a full fleet implementation, Soucy’s training services are modularized and progressive to meet the client’s needs. On site services in the field or the classroom, training systems are easily adaptable and scalable to transition from a traditional steel track to a modern rubber track system.

SUSTAINMENT

SPARE PARTS MANAGEMENT

The cost effective management of spare parts over the life cycle of an armoured fleet allows Soucy’s track to be a welcomed sub system to its client fleets. Initial Provisioning and Life Cycle Costing Services are important components to smart and fiscally sound decisions.

SPECIAL TOOLS

Soucy provides a variety of simple tools to support the track system in the field. Tools integrate to existing vehicle systems to produce a seamless conversion to rubber track.

USER MANUALS / CHANGE MANAGEMENT

With our recent investment into the HTML based ARBORTEXT® software, Soucy takes pride in its ability to synchronize it engineering department with its publication staff to produce track manuals and more S1000D change management documentation easily to meet client demands.
SUSTAINMENT (SUITE)

PACKAGING / HANDLING / STORAGE / TRANSPORTATION

Reduce track storage needs and manual handling for smaller track kits.

REPAIR & OVERHAUL / RECYCLING SERVICES

From the Cradle to the next Life, all track components may be rebuilt. At the very end of their useful life, track components are fully recyclable. Partners across the globe ensure cost effective and environmentally conscious management of the full suite of our products.

WITH OUR GLOBAL PARTNERS WE PROVIDE A SECOND LIFE TO THE RUBBER TRACK

BY RECYCLING SAVE EMISSION OF GREENHOUSE, FOSSIL FUELS & ACIDIFICATION OF THE ATMOSPHERE

ON SITE SERVICE / SUPPORT HOT LINE / CLIENT FEEDBACK

No matter where you are in the world, our on site services allow field units to be better served. Staying connected with our clients is key to our success.

Contact us through our Web Site or by Telephone at:

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ils.defense@soucy-group.com
engineering.defense@soucy-group.com
Telephone: 1 844-333-5564
Soucy Defense is a complete solution provider specializing in technically advanced material engineering and product manufacturing for defense vehicles.

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Drummondville (Quebec) J2B 6W3
CANADA
Fax: 819 477-9423

www.soucy-defense.com

OUR MISSION
For the agricultural, recreational, industrial and defense sectors:
- To be the world leader in rubber track systems.
- To be the partner of choice of Original Equipment Manufacturers (OEM) to carry out the design and manufacture of plastic, polyurethane, rubber and metal parts.
For the after-sales market:
- To be an added-value designer, manufacturer and distributor of recreational vehicle parts and accessories.

OUR CORE VALUES
RESPECT / CUSTOMER FOCUS / TEAMWORK / INNOVATION / COMMITMENT TOWARDS EXCELLENCE