



## **TerraForce™ Undercarriage Systems**

for Electric Rope Shovels, Hydraulic Excavators,  
and Large Rotary Blasthole Drills

## TerraForce™ Undercarriage Systems Engineered for Extreme Mining Conditions

Electric rope shoves, hydraulic excavator, and large rotary blasthole drill undercarriages operate under extreme mechanical loads, abrasive conditions and demanding production schedules. Reliable performance, durability, and predictable wear performance are essential for maintaining production and minimizing downtime.

TerraForce™ Undercarriage Systems from ME Elecmetal combine advanced metallurgy, robust structural design, and precision manufacturing to deliver reliable performance in the most demanding mining environments.

Through ME Elecmetal's ME FIT® Mine Integral Solutions approach, TerraForce™ Undercarriage Systems are supported with engineering expertise, manufacturing excellence, and ongoing field support.

Customers can choose between a standard OEM-equivalent system or an enhanced design engineered to extend component life and reduce maintenance.

### Designed to Deliver:

- Improved Safety
- Reduced Maintenance
- Improved Availability
- Lower Total Cost of Ownership
- Reliable, Predictable Undercarriage Performance



- ✓ OEM-Comparable Designs
- ✓ Optimized Performance Options
- ✓ Engineered for Durability

### Engineering Expertise and Manufacturing Excellence

ME Elecmetal integrates engineering design, metallurgical expertise, and advanced manufacturing capabilities to deliver high-performance undercarriage components for demanding mining environments.

### Engineering Focus Areas:



- **Structural Durability**

Components engineered to withstand extreme shovel loads.



- **Advanced Metallurgy**

Optimized manganese and alloy steel grades designed for impact resistance, durability, and work hardening.



- **Precision Manufacturing**

Consistent casting quality and dimensional accuracy.



- **Field-Proven Reliability**

Solutions supported by decades of mining experience worldwide.

## TerraForce™ Standard Undercarriage System

### Proven OEM-Comparable Performance

The TerraForce™ Standard Undercarriage System provides dependable replacement solutions designed for compatibility with existing electric rope shovel, hydraulic excavator, and large rotary blasthole drill installations.

#### Key Benefits:

- **OEM Comparability**  
Direct replacement installation without frame modifications.
- **Consistent Wear Performance**  
High-quality manganese or alloy track pads provide reliable wear resistance.
- **Predictable Maintenance**  
Stable geometry supports planned maintenance intervals.
- **Field-Proven Reliability**  
Durable components designed for demanding mining environments.

## TerraForce™ MaxLife™ Undercarriage System

### Extended Life. Reduced Maintenance.

TerraForce™ MaxLife™ models are designed for operations seeking to maximize uptime and reduce lifecycle cost. Depending on the application and machine model, MaxLife™ systems may incorporate a range of design features engineered to improve durability, extend service life, and reduce maintenance requirements.

#### Available MaxLife™ features may include\*:



#### Improved Safety

Optimized geometry minimizes material flow as track pads wear, reducing the formation of dangerous “toenails” that interfere with articulation and create unsafe conditions.

- Helps prevent roller path crushing caused by material loss
- Helps reduce the risk of “fly-metal” generated by toenailing



#### Extended Track Pad Life

The TerraForce™ MaxLife™ configuration features an expanded roller path to improve load distribution across the undercarriage system, reducing localized stress and wear.

- Wider roller path, rollers, and idlers on selected models
- Up to 8% lower contact stress between rollers and the roller path



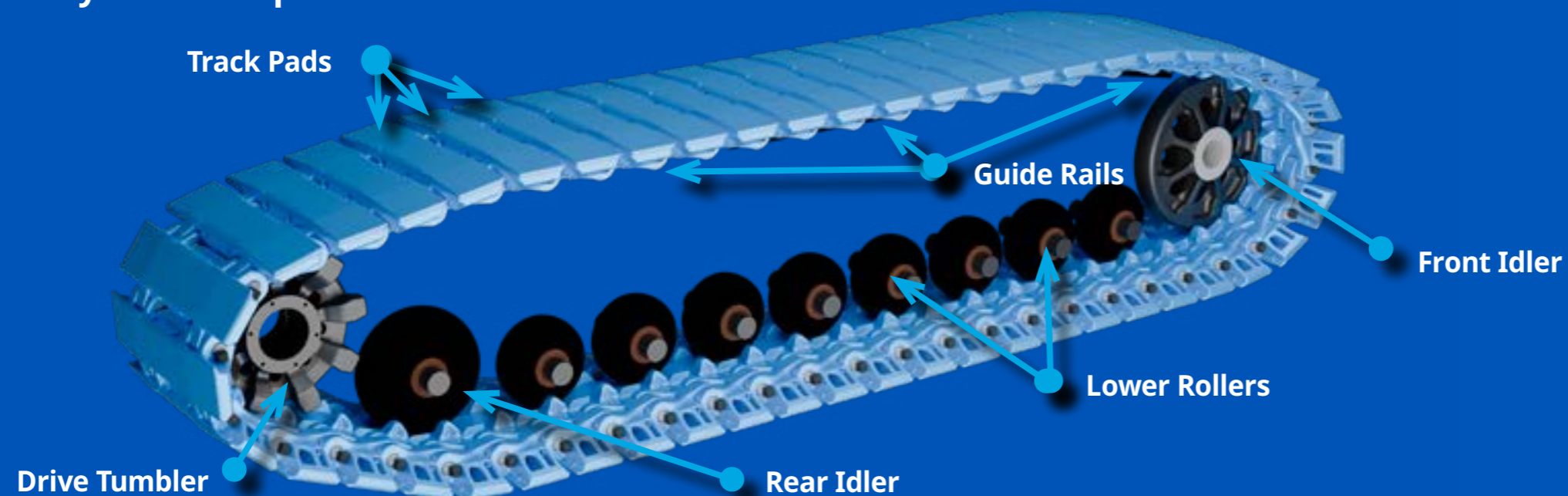
#### Reduced Maintenance Frequency

Optimized geometry and improved structural stability help extend service intervals and reduce the frequency of maintenance events.

- Reduced component deformation under heavy loads
- Improved durability for longer maintenance intervals

*\*Features and performance benefits vary by model and application.*

### Standard System Components:



### Compatible OEM Models:

#### Komatsu:

- 2800XPB/C | 4100A | 4100XPB/C | PC5500

#### Caterpillar:

- 7495

#### Hitachi:

- EX5600

## TerraForce™ MaxLife™ Performance Comparison

50% Longer Life. Millions in Savings.

### The Challenge:

Customer needed to improve undercarriage durability and reduce lifecycle costs for electric rope shovel operations.

### The Solution:

Implementation of the TerraForce™ MaxLife™ Undercarriage System, engineered to improve load distribution, extend track pad life, and reduce maintenance frequency.

### Verified Results:

+50% Service Life

-24% Cost per Hour

One Fewer Undercarriage Replacement

### Performance Comparison:

#### Standard vs TerraForce™ MaxLife™

Metric	Standard System	TerraForce™ MaxLife™
Service Life	20,000 hours	30,000 hours
Cost per Hour	\$75/hr	\$57/hr
Undercarriage Replacements (to 60,000 hours)	3	2
Total Undercarriage Parts Costs	\$4.5M	\$3.42M
Direct Parts Costs Savings	—	\$1.08M
Estimated Reduced Downtime Cost Savings	—	\$7.2M

### The Results:

#### \$1.08M Direct Cost Savings on Parts

Reduced replacement frequency and improved wear performance lowered total undercarriage parts costs.

#### Estimated \$7.2M in Reduced Downtime Cost Savings

Fewer changeouts significantly reduced downtime over the life of the equipment.

- A single undercarriage replacement takes the customer 12 days
- = 12 days × 24 hours × \$25,000/hour
- = **\$7.2M in downtime cost**

### The Impact:

By extending service life and reducing maintenance frequency, TerraForce™ MaxLife™ helped the customer's operations:

- Increase equipment availability
- Reduce maintenance downtime
- Lower total cost of ownership



## TerraForce™ MaxLife™ Product Benefits

### Backed by ME FIT® Mine Integral Solutions

ME FIT® Mine is an optimization solutions program that delivers benefits across the extraction and transportation of minerals by integrating consulting, products, services, people, and manufacturing.

Through our ME FIT Mine Integral Solutions approach, ME Elecmetal supports customers throughout the entire lifecycle of the undercarriage system—combining engineering expertise, manufacturing excellence, and ongoing field support.

### Experience That Drives Results

- 100+ years of global foundry expertise
- 75+ years of electric mining shovel application experience
- Ongoing field audits and after-sales support

## TerraForce™ MaxLife™ KPIs

Built on decades of experience in mining solutions, ME Elecmetal has established key performance indicators that validate the measurable outcomes achieved across customer operations.

Maintainability	Costs	Wear Rate	Availability	Safety
Extended service life helps reduce maintenance frequency and lower maintenance costs.	Higher throughput and longer wear life help improve overall process value.	Optimized designs help extend product life and support more consistent wear performance.	Longer service intervals help improve equipment availability and reduce downtime.	Solutions designed to reduce personnel exposure to equipment and maintenance-related risks.

## ME FIT® Integral Solutions

ME Elecmetal's ME FIT® programs drive continuous improvement through close collaboration with our customers and multidisciplinary teams. Using a structured, integrated approach, we align with customer goals to deliver measurable results, improve operational efficiency, and support long-term performance.

### ME FIT® Mine:

- Examines customer needs and delivers customized solutions that address specific challenges and add demonstrable value to our clients' operations.
- Takes advantage of the ME Elecmetal highest standards of quality, manufacturing and service.
- Offers a lower total cost of ownership (TCO) to our customers through cost reductions, performance improvements and increased profits.

## Your Partner in Performance

ME Elecmetal goes beyond product supply—working alongside customers through ME FIT® Integral Solutions to optimize performance, improve reliability, and extend equipment life.

From engineering and design to field support and continuous improvement, we deliver the expertise needed to achieve sustainable, long-term results.

