

Miner International



**A Global Supplier
of innovative
wagon components**

TecsPak® - An Innovative Breakthrough in Energy Absorption

In the 1970s, Miner Enterprises developed and introduced TecsPak® — a completely new elastomer spring that set new standards for cushioning in wagon applications. TecsPak® pushed energy absorption capabilities to new limits, well beyond the constraints of materials like rubber, polyurethane and steel. Able to withstand the most difficult extremes of climate and heavy-duty usage, TecsPak created a new level of expectation throughout the railroad industry.



In the more than 40 years since the introduction, Miner has continued to utilize TecsPak in new product development to provide solutions to new and emerging cushioning and energy management problems in the rail industry.

These products have become the industry standard for spring packages, draft gears and side bearings, as well as other products unmatched for their performance, reliability, durability and low maintenance requirements.

In the real world of railroading, where there is no substitute for toughness, and products have to deliver every day, without failure, for months and years on end, products featuring Miner's TecsPak technology continue to deliver the goods on our core promise:

"It's What's Inside That Counts."



As seen in this cut-away view, the TecsPak spring package inside every TF-880 draft gear is the key to its exceptional performance, value and durability.



TecsPak®



Miner spring packages provide greater impact protection

No matter what kind of spring package your application requires, products featuring Miner's patented TecsPak® elastomer pads absorb more energy from impact forces and provide unsurpassed protection to locomotives, freight wagons and passenger coaches.

This higher capacity protection means unmatched durability, dependability and resilience — reducing maintenance costs and increasing the productivity of your equipment.

Miner TecsPak® spring packages have a documented durability record spanning more than 40 years on rail systems throughout Europe. They resist exposure to dirt, chemicals and solvents and have proven to maintain their energy absorption capabilities over many years.

TecsPak® Buffer Springs

Miner buffer springs provide unprecedented shock absorption capabilities that last. Unlike rubber/steel ring buffer springs, Miner TecsPak® springs require no maintenance or adjustments after installation and are designed to comply with specifications for Category A & B applications.

Designed to comply with EN-15551, Miner TecsPak® buffer springs have been rail tested on freight wagon and passenger coach applications for over 40 years.



Category A Springs

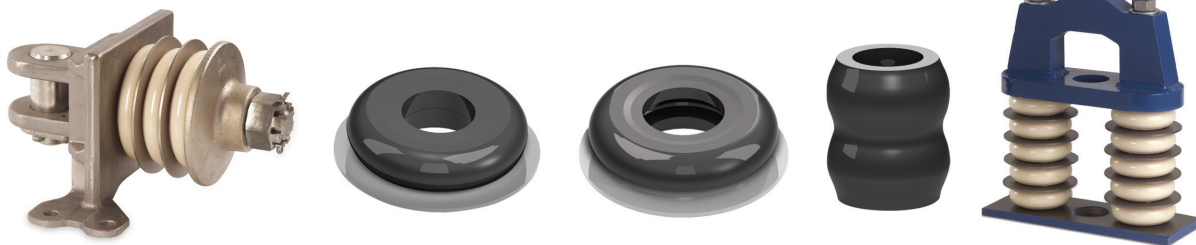


Category B Springs

TecsPak® Drawgear Springs

Miner TecsPak® drawgear springs are designed to comply with EN-15566, while providing the excellent energy absorption and durability characteristics of all Miner TecsPak® products. Miner spring packages are also available for 0.85 MN and 1.5 MN drawgear springs.

Miner drawgear springs are available in a variety of configurations and capacities, including smaller diameter models used when reduced clearances are present. Miner can engineer special spring packages to meet your unique size, shape and capacity requirements.



Miner's innovative TecsPak® spring packages have been providing unprecedented protection to rail systems throughout Europe for over 40 years.

Brake Beams, Hatch Covers, Side Bearings & Unloading Systems

Brake Beams

Long life. High performance. Reduced maintenance cost. Miner's Series 2008 Brake Beam is ruggedly designed and superbly engineered to extend the life of your brake shoes and wheels to keep you moving forward.

- Long Service Life
- Extended Brake Shoe and Wheel Life
- Trouble-Free Service
- Versions have been designed in a wide range of gauges and configurations to suit most international railway systems



Constant Contact Side Bearings

Miner TecnPak® Constant Contact (TCC) Side Bearings provide maximum wagon protection while minimizing wagon lifecycle costs. Available in several models and preloads to fit your needs, Miner side bearings provide exceptional, proven control over wagon bogie instability and bogie hunting.

- Superior truck hunting control
- Improved curve performance
- Maximum wagon body roll control
- Maximum energy absorption

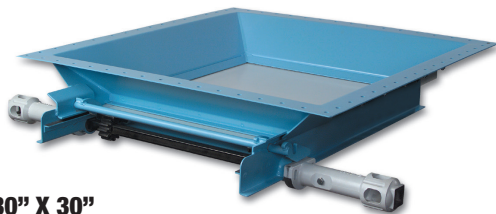
**TCC-III and TCC-IV
Constant Contact Side Bearings**



Discharge Gates

Miner's heavy-duty AutoLOK™ outlets are simple to operate and offer reliable, trouble-free discharging of grain, sugar, dry bulk chemicals, sand, cement, and other commodities. Miner AutoLOK outlet gates are always easy to open and close, stay locked, and have full perimeter seals to prevent leakage. Miner has a variety of gates to accommodate virtually any unloading needs.

**AutoLOK™ II
762 mm x 762 mm/30" X 30"**



Unloading Systems

Miner can also engineer a custom unloading system to significantly broaden your options to increase existing wagon capacity, speed up unloading, or meet special unloading requirements. Miner has engineered, manufactured and installed custom solutions that have modified wagons to handle a wide variety of commodities including coal, ballast, wood chips, iron ore, dry bulk chemicals and grain.

AggreGate®



Hatch Covers

DuraShield hatch covers are available in both round and square end-cover configurations to accommodate most 24" trough designs and are available in all standard lengths. The DuraShield is a lightweight low profile composite cover system that is more durable than fiberglass and lighter weight than all-aluminum hatch covers.



Draft Gears

Miner offers a variety of draft gears to satisfy your wagon protection requirements.

SL-76™

An excellent gear for all wagons, up to and including 130 tonnes/ 286,000 pound gross rail load. Provides extra heavy-duty wagon protection and less operating slack, resulting in reduced wear to sill walls and all draft system components.

- Official rating travel – inches 3.05
- Official capacity – foot pounds 47,820
- Gear weight – 134 lbs / 142 kg
- Official maximum capacity – foot pounds 53,900



Crown SE™

The Crown SE™ is a high capacity all-steel draft gear engineered for strength and longevity.

- Official rating travel – inches 3.19
- Official capacity – foot pounds 44,980
- Gear weight – 359 lbs / 161 kg
- Official maximum capacity – foot pounds 47,520



DrawGuard™

Miner drawbar gears provide the highest level of slack reduction performance in drawbar connected wagon applications.

- Official rating travel – inches 3.19
- Official capacity – foot pounds 44,980
- Gear weight – 359 lbs / 163 kg
- Official maximum capacity – foot pounds 47,520

TF-880™

A lightweight, high performance M-901E draft gear, allowing extra payload capacity and greater wagon design flexibility.

- Official rating travel – inches 2.93
- Official capacity – foot pounds 45,520
- Gear weight – 270 lbs / 124 kg
- Official maximum capacity – foot pounds 52,640



Crown SG™

The Crown SG™ is Miner's all-steel draft gear specifically designed for applications involving heavy-haul and multi-unit intermodal wagons.

- Official rating travel – inches 3.12
- Rating capacity – foot pounds 54,443
- Gear weight – 370 lbs/ 168 kg





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