



POLSPA POLYMER SPRINGS

Buffer, Draw Gear & Draft Gear Springs with High Energy Absorption & Long Service Life

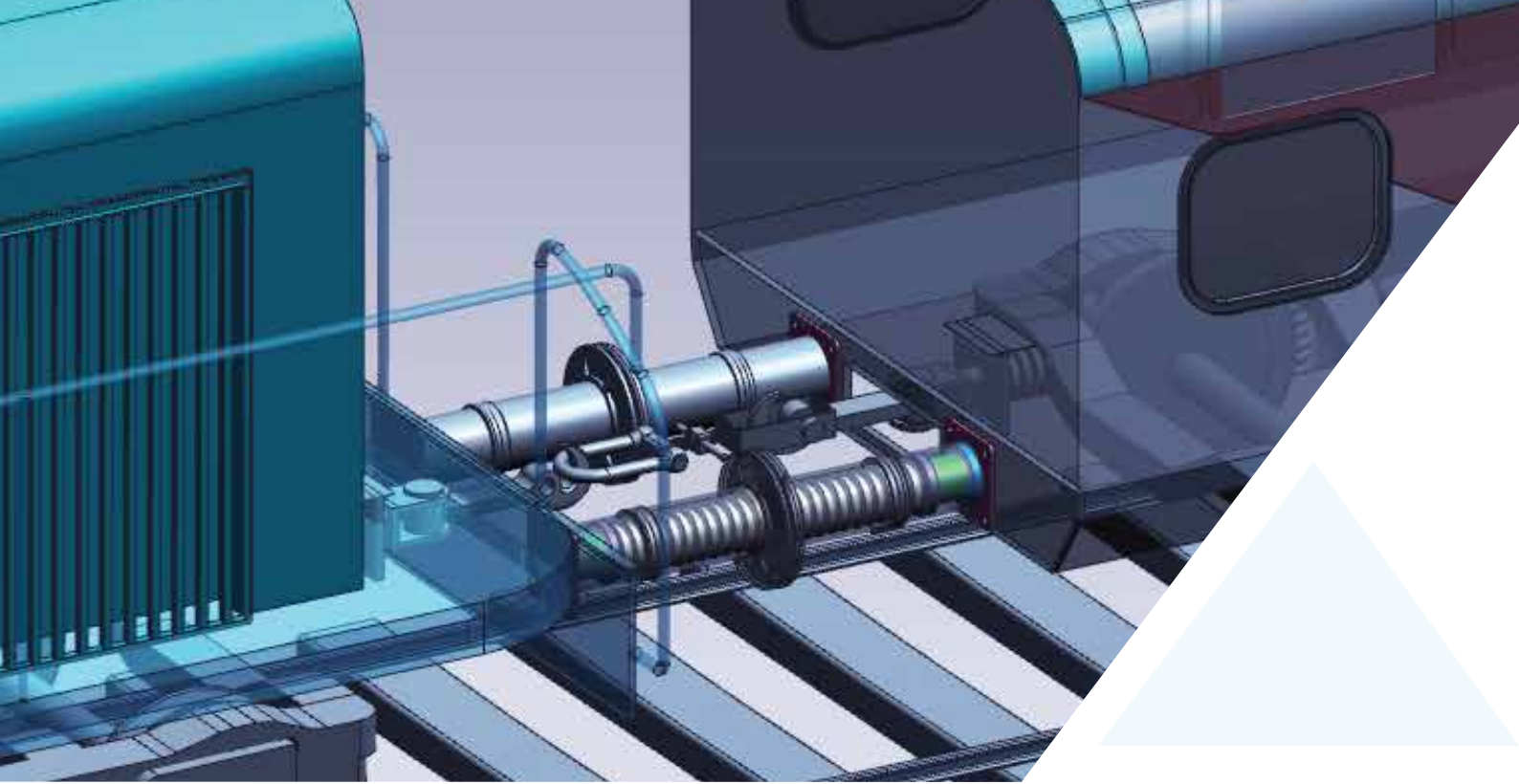
PRAG
INNOVATION AT WORK

Polspa is a highly engineered elastomeric spring pack designed for all kinds of railroad buffing and draw gear applications.

It absorbs significantly higher amounts of energy as compared to comparable rubber or steel springs while at the same time stabilizes vehicle running dynamics and ensures a smooth and comfortable ride.



LONG LIFE
HIGH PERFORMANCE
POLYMER SPRINGS



Buffers and coupling systems used on rail vehicles are continuously subject to enormous amounts of longitudinal forces. While offering adequate protection to the passengers or commodity being transported and to the rail vehicle body, the coupling systems also need to ensure smooth vehicle running dynamics and maximize passenger comfort.

The 'Fit-and-Forget' High Performance Polspa Polymer Springs are designed to deliver high-energy absorption in both draw as well as buff modes, minimize longitudinal jerks, and provide maintenance free performance over the entire life of the railcar.

Polspa springs provide the most efficient energy absorption system for a given railcar weight and offer a life expectancy that is several times higher than that of either rubber or steel springs. Predictable absorption and release of energy helps trains to start, accelerate, decelerate, stop and negotiate curves smoothly with minimal transfer of forces to the railcar body.

The polymer material allows for a construction that is extremely light-weight yet can withstand extreme loads, impacts and temperature variations. Polspa Spring packs have been tested for extreme climatic conditions and are suitable for continuous operation in ambient temperatures ranging from **-55°C to +55°C**.



Polspa PS 30N

30 kJ Dynamic Capacity

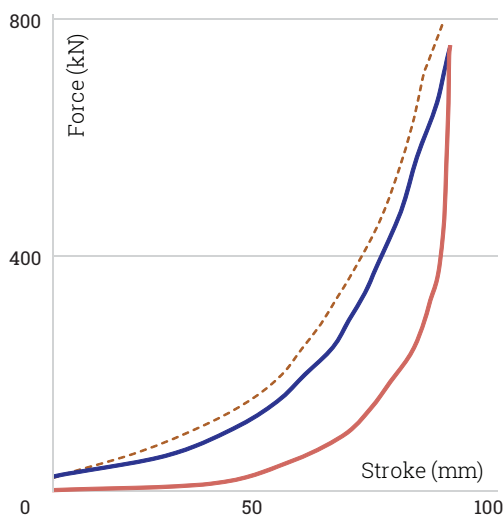
For use on Locomotive, Passenger Cars and Special Railcars

Compliant to UIC 526-1

Op. Temp. Range: -55° to +55°C

Available with UV Protection

Max Force [kN]:	804
Stroke [mm]:	100
Preload [kN]:	12
Stored Energy [kJ]:	20
Absorbed Energy [kJ]:	11.5
Damping [%]:	57.5
Installed Height [mm]:	301 ± 2
Outer Dia at Full Stroke [mm]:	170
Dia of Inner Bore [mm]:	44
Weight [kg]:	9



Polspa PS 35N

35 kJ Dynamic Capacity

For use on Locomotive, Passenger Car and Special Rail Car Buffers

Compliant to UIC 526-1 & EN 15551

Op. Temp. Range: -55° to +55°C

Available with UV Protection

Max Force [kN]:	735
Stroke [mm]:	105
Preload [kN]:	15
Stored Energy [kJ]:	25.5
Absorbed Energy [kJ]:	16.5
Damping [%]:	64.7
Installed Height [mm]:	368
Outer Dia at Full Stroke [mm]:	170
Dia of Inner Bore [mm]:	44
Weight [kg]:	12



Polspa PS 35 UV

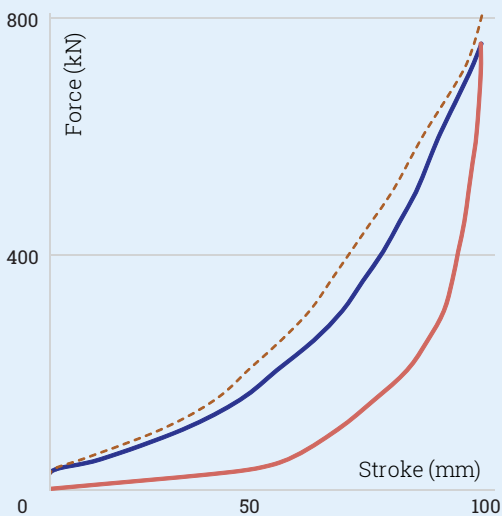
35 kJ Dynamic Capacity

For use on Locomotive, Passenger Car and Special Rail Car Buffers

Compliant to UIC 526-1 & EN 15551

Op. Temp. Range: -55° to +55°C

UV Resistant Spring Pack



Polspa PS 70N

70 kJ Dynamic Capacity

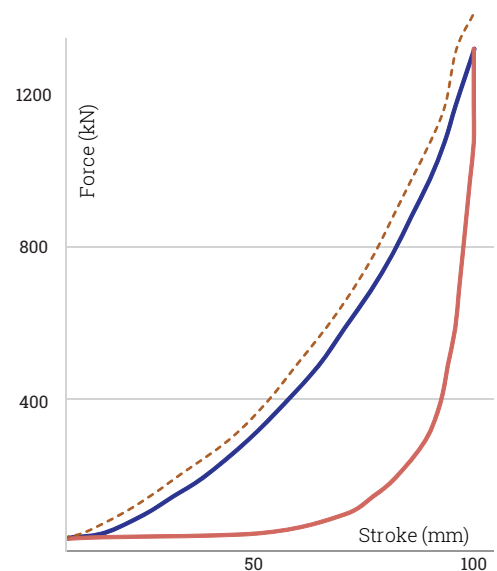
For use in Locomotive and Freight Wagons Draft Gears

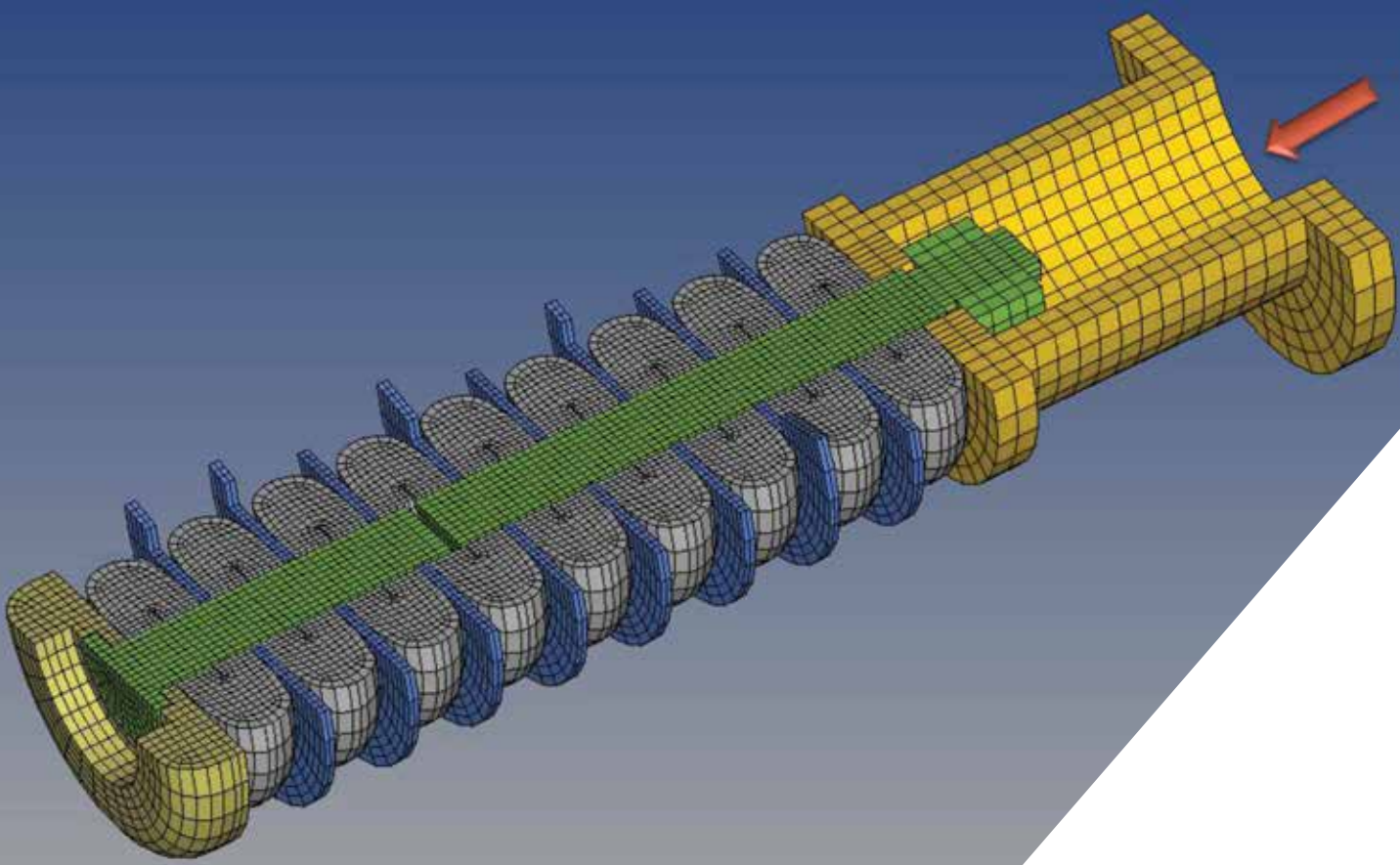
Compliant to UIC 526-1

Op. Temp. Range: -55° to +55°C

Available with UV Protection

Max Force [kN]:	1323
Stroke [mm]:	110
Preload [kN]:	34.3
Stored Energy [kJ]:	50
Absorbed Energy [kJ]:	38
Damping [%]:	76
Installed Height [mm]:	430 ± 5
Outer Dia at Full Stroke [mm]:	195
Dia of Inner Bore [mm]:	46
Weight [kg]:	20





DESIGNED TO PERFORM CONTINUOUSLY UNDER THE MOST DEMANDING CONDITIONS

The polymer spring elements that form the Polspa Spring Packs are made up of a special highly engineered urethane material that has excellent damping characteristics as well as outstanding resistance to tear propagation and exhibits exceptional energy absorption properties.

Spring elements with the optimal shape and bulge factor for railcar energy absorption applications are formed using a unique manufacturing process that ensures that the formed polymer surfaces are free of any internal stresses and have a profile that ensures perfect centering and concentricity during spring pack assembly. The product is engineered to perform consistently over the entire life of a railcar without any significant loss in operating characteristics.

The choice of specialty polymer material allows for soft springs that undergo significant travel during initial stages of compression (corresponding to the loading conditions during normal railcar operations) while at the same time are able to withstand significantly high end-loads (experienced in cases of emergency braking or impact). This design creates springs that prevent transmission of coupler forces and help reduce braking jerks during normal railcar operations, while at the same time absorb high amounts of energy and offer adequate protection to the carbody.

COMPLIANT TO INTERNATIONAL QUALITY STANDARDS

Polspa polymer springs are manufactured in accordance with ISO 9001 : 2008 quality standards at Prag's state-of-the-art manufacturing facilities and undergo thorough testing at our comprehensive in-house quality testing labs.

The springs meet and exceed the highest international quality standards including UIC-526-1, UIC 528, DIN EN 15551, DIN EN 15566 and have successfully qualified extensive testing at UIC approved test labs in Germany in addition to actual user trials on locomotives for over two years.

Polspa springs are chemically resistant to oil, grease, solvents and many other substances that they may come in contact with during service. They are duly tested for resistance to weathering and are also available in ultra-violet radiation resistant variants for applications that involve prolonged exposure to direct sunlight. Our high quality metal treatment process ensures that the spring pack will not experience scaling, rusting or crack formation throughout the railcar service life.

DIVERSE APPLICATIONS

Besides railroads, the technology for making Polspa springs can be extended to numerous other heavyduty shock or vibration absorbing and noise reduction applications.

The polymer material is highly customizable and offers the design flexibility to create a range of energy absorption products for use in oilfield, mining, industrial, and construction and earth moving equipment.

CHOOSING THE RIGHT POLSPA SPRING FOR YOUR APPLICATION

A polymer buffer or draw gear spring needs to be soft to ensure uniform and comfortable motion of the railcar and foster smooth negotiation of curves while at the same time not too soft so as to absorb sufficient amounts of energy to ensure safety and prevent railcar wear and damage.

Therefore, the buffer characteristics must be selected judiciously to ensure that the desired comfort and protection is achieved. A range of variables need to be considered while making the selection, including type of coupling system in use, coupler forces in play, railcar weights, rated train speeds, and track and environmental conditions.

Our team of engineers, backed by Prag's 30+ years of technical expertise in the railway industry, will work with you during the spring selection process to help you select from our range of available soft springs or offer custom designed springs that offer just the right passenger comfort and safety combination.

Polspa springs are easily configurable to meet your unique requirements and can be used either as retrofit in existing buffer housings or in new buffer, draw gear or draft gear construction.

We can design spring packs for use in coupling systems of Locomotives, Passenger Cars, Freight Cars, as well as Special Railcars and can offer a range of configurations including single and twin pack designs and balanced draft gear springs.

Custom spring configurations developed for your unique applications will be duly qualified with requisite UIC or EN test standards at accredited test labs.



Our Technology Partners



Rubber & Polyurethane Products | Air Springs | CCSBs | Draft Gears | Polspa Polymer Springs
Railroad Air Brake Systems | Pneumatic Clutches & Brakes | Air Dryers | Heat Exchangers
Air, Oil & Fuel Filters | Inertial Filtration Systems | Composite Electrical Insulators

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