Increase productivity and reduce downtime with Marsh Mellow fabric & rubber springs.

Long life, simple mounting, fast replacement time, and virtually maintenance-free operation boost machine availability for greater productivity.

Marsh Mellow springs cannot break, trap particles, corrode, or bottom-out.

Each spring features a bias-ply fabric wrap for dependability and uniform performance.

The variable rate/constant frequency of the spring allows each spring size to accommodate a wide load range and perform consistently, whatever the load. Tough, quiet Marsh Mellow springs are a great new solution to those same old isolation problems.


The new solution to vibration isolation problems
<table>
<thead>
<tr>
<th>Marsh Mellow spring</th>
<th>Maximum Allowable Stroke @ 600 1200 CPM in/mm</th>
<th>UNLOADED SIZE</th>
<th>MINIMUM LOADING</th>
<th>MAXIMUM LOADING</th>
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<tr>
<td></td>
<td>Outside Diameter in/mm</td>
<td>Inside Diameter in/mm</td>
<td>Free Height in/mm</td>
<td>Minimum Loading lbs/kN</td>
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Advantages with Marsh Mellow® springs

Constant Vibration isolation with Changing Loads
The variable spring rate allows for a nearly constant natural frequency with changing loads. This results in consistent vibration isolation with variable loading.

High Load Carrying Capacity
Due to the Marsh Mellow® spring’s greater deflection capabilities and load carrying influences of the fabric reinforcement, it can carry a greater load when compared to an all rubber part of the same modulus and dimensions.

Excellent Vibration Isolation
Low natural frequencies provide excellent isolation of forced frequencies in the range of 800-1200 cycles per minute (13-20Hz).

Lateral Vibration Isolation
The lateral spring rate of a Marsh Mellow® spring can be less than the vertical spring rate, resulting in a lower lateral natural frequency. Marsh Mellow springs provide better vibration isolation in all degrees of freedom.

Compact Overall Size
The ability to support greater loads and maintain cylindrical shape results in a smaller overall size of the Marsh Mellow spring compared to an all rubber spring with identical load capacity. This is important when considering an application with a small design envelope.

Corrosion Resistant for a Durable, Long Life
Due to its rubber and fabric reinforced construction, the Marsh Mellow spring has been proven in the damp and corrosive environments of mines and mills where a standard coil spring will fail.

Does Not Bottom-Out
Due to the rubber construction, Marsh Mellow springs do not bottom-out like coil springs. Bottoming-out under overload or surge load sends a large amount of stress to all of the machine’s components.

Eliminates Downtime and Potential Damage to Machinery
When a coil spring fails, it will often crack, allowing fragments of the coil to damage equipment. This problem is eliminated with the rubber construction of Marsh Mellow springs. Additionally, Marsh Mellow springs exhibit exceptionally high overload characteristics and usually do not fail catastrophically, offering some support even during failure.

Increased Stability at Higher Percentages of Compression
Rubber is an incompressible fluid which will flow to the path of least resistance. In a Marsh Mellow spring, as the height compresses, the fabric reinforced rubber plies pantograph and the diameter grows. This supports the rubber core laterally, even at 30-40% compression.

Effective Noise Reduction
Marsh Mellow springs reduce structurally transmitted noise caused by vibration. Marsh Mellow springs are quiet, unlike steel springs which often suffer coil chatter and readily transmit high frequency structural noise.

Low Cost
The Marsh Mellow spring’s high load capability means fewer springs may be needed in an application, resulting in less overall cost.

Maintenance Free
Marsh Mellow springs have no moving parts. No maintenance or lubrication is required.

Precautions with Marsh Mellow® springs

Temperature
Our standard industrial Marsh Mellow springs have an operating range of -40°F to 153°F (-40°C to 73°C). The upper limit is defined by the actual rubber temperature during operation. High frequency inputs or large deflections will cause the rubber temperature to increase.

Design Envelope
Adequate clearance should be provided around the Marsh Mellow spring to prevent rubbing of the outer cover. The outside diameter of the spring at various heights is listed in the table of dynamic characteristics on each individual data page.

Contaminates
Shielding should be used to protect the rubber from exposure to hot metal, petroleum base fluids, acids, etc. Please consult Firestone if you wish to know how the spring will withstand a specific contaminate. For liquids such as acids, it is important to know both concentration and temperature.

Storage
The best storage environment is a dark, dry area at normal room temperature.

Percent Compression
The general compression range of a Marsh Mellow spring is 15% to 27%, however, this value may vary somewhat among springs and applications. Always follow the load ranges and their corresponding compression percentages as shown in the selection guide.

Allowable Stroke
When applying a Marsh Mellow spring, the stroke throughout the range of motion of the machine being isolated must be considered. Delta strain, defined as the ratio of the stroke to the free length, is restricted to less than 7.5%.

Note that a given stroke is typical of vibrating screen types of applications, where the stroke is designed into the system. In other isolation applications, this stroke may not be known. The stroke is typically not excessive in standard isolation applications but should be considered. Consult Firestone for assistance.

Disturbing Frequency Range
Marsh Mellow springs are suitable for disturbing frequencies in the 800-1200 CPM (13-20HZ) range for medium stroke applications. High frequency high stroke applications may lead to overheating the Marsh Mellow spring. Low stroke applications, however, are capable of handling higher disturbing frequencies. Please consult Firestone with specific applications.

Lateral Stability
The lateral spring rate to load ratio for a Marsh Mellow spring decreases as deflection increases. This is one reason it is important not to exceed the given load capabilities.
Marsh Mellow spring construction—Unique construction elements are the secret of the spring’s design flexibility. The solid rubber core with hollow center, bias-ply fabric wrap, and tapered ends, may be varied and combined to meet specific load and performance requirements.

Marsh Mellow spring mounting
Installation is simple, fast, and uses a minimum of space. Normally, a spacer and two pins are all that's required.

Vibration Isolation

**Bin Hopper**

*Shock Impact*

**Compressor**

**Vibrating Screen**

**Blower and Motor**

**Shock Absorption**
Shock absorption is a natural application for Marsh Mellow springs. Suitable for cranes, hammers, bumpers, and similar applications.

**Tag Line**
Tag lines are usually required for inclined screens or screens with off-mounted pivot motors. Consider using Marsh Mellow tension bands. Marsh Mellow tension bands are constructed with just the fabric reinforced plies and serve as an industrial strength band.

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World’s Number 1 Air Spring.

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