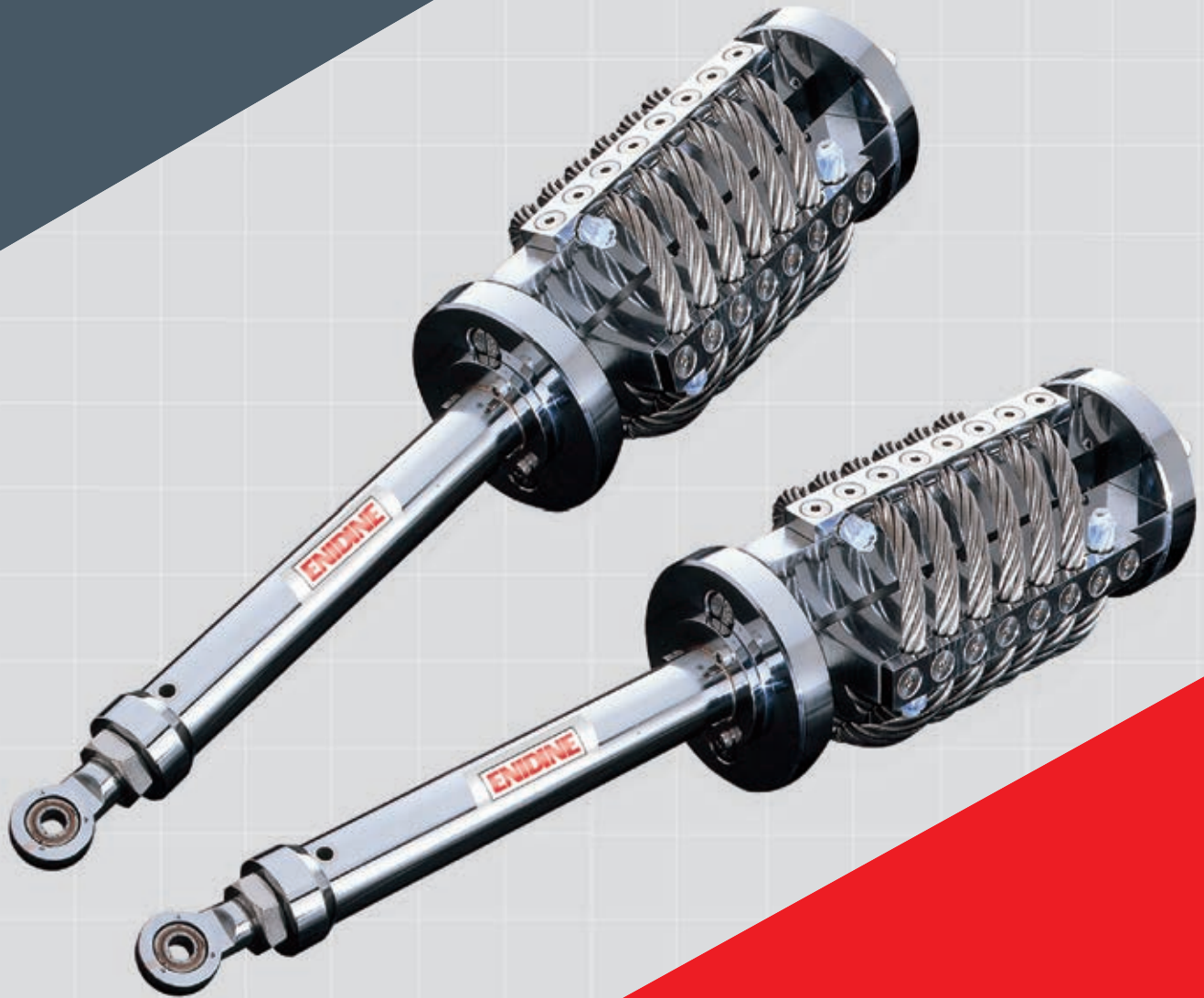


# WEAR™ Pipe Restraints Vibration Isolator



**ENIDINE**

# WEAR™ Pipe Restraints

With its world headquarters located in Orchard Park, New York, USA, ENIDINE is a world leader in the design and manufacture of standard and custom energy absorption and vibration isolation product solutions within the Industrial, Aerospace, Defense and Infrastructure markets.

Product ranges include shock absorbers, rate controls, air springs, wire rope isolators, heavy industry buffers and emergency stops. With facilities strategically located throughout the world and in partnership with our vast global network of distributors, Enidine continues to strengthen its presence within global marketplace.



## Vibration Isolation Specialists

Minimizing the amount of vibration your machines experience is critical to their long-term performance. Vibration fatigue can cause premature equipment failure and expensive machine downtime. But finding a way to reliably and cost-effectively counteract it has always been a challenge.

Engineered with a rugged, all-metal design comprised of stainless steel cable and RoHS compliant aluminum retaining bars, our wire rope products provide unsurpassed multi-axis vibration isolation. They require almost no maintenance. They're environmentally stable and — since our customers depend on us to help their machines perform in even the harshest environments — they're highly resistant to extreme temperatures, oil, ozone, abrasives and chemicals.

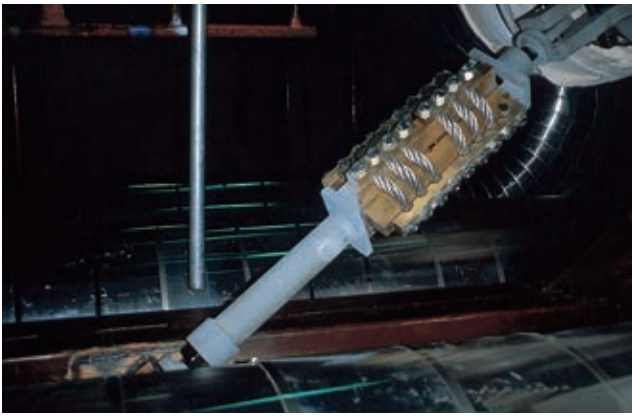
Even if your application parameters fall outside of our standard product line, Enidine has the engineering capabilities to design, test and recommend a custom solution to suit your specific needs.

For more than 50 years, we've partnered with our customers to provide value that extends beyond our products — leveraging our extensive knowledge to address your most challenging applications.

Contact us today to learn how we can support your critical application.



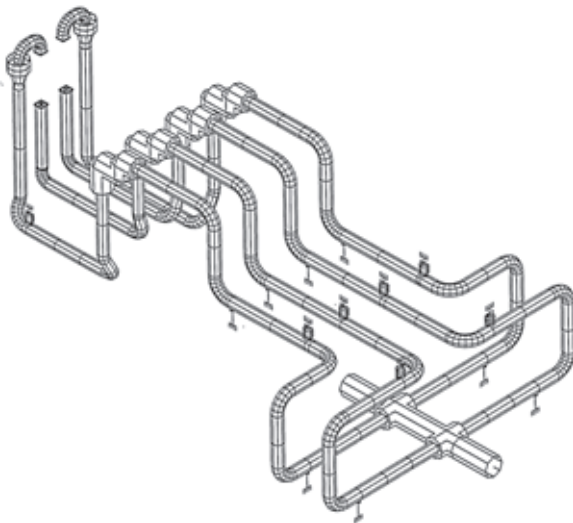
# WEAR™ Pipe Restraints



WEAR™ (Wire Energy Absorbing Rope) pipe restraints are uniquely packaged wire rope isolators designed to protect structures from steady state vibration and isolate them from seismic and dynamic loads. These new generation energy absorbing restraints feature simple construction. There are no oils, seals or complex moving parts required to perform their function. The design has eliminated the problems often associated with hydraulic or mechanical restraints which are complex and prone to failure.

The Wire Rope Isolator, which is the basic element of the technology has been successfully used by the military for more than 25 years. As a result, it conforms to government and military quality control requirements. The restraint is thus exempt from surveillance testing. In-place visual inspection is all that is required to assure operability.

The WEAR™ can be provided with a wide range of piping accessories and can be supplied to ISO 9001, Mil-Q, Mil-I, B31.1 or ASME Section III subsection NF.



Auto pipe analysis available upon request.

## Options Available

Various end connections are available to meet existing hardware such as Bergen Paterson, Basic Engineers, PSA, Grinnel and others. For sizing or specific application information, call your local representative or Enidine directly.

## Typical Applications

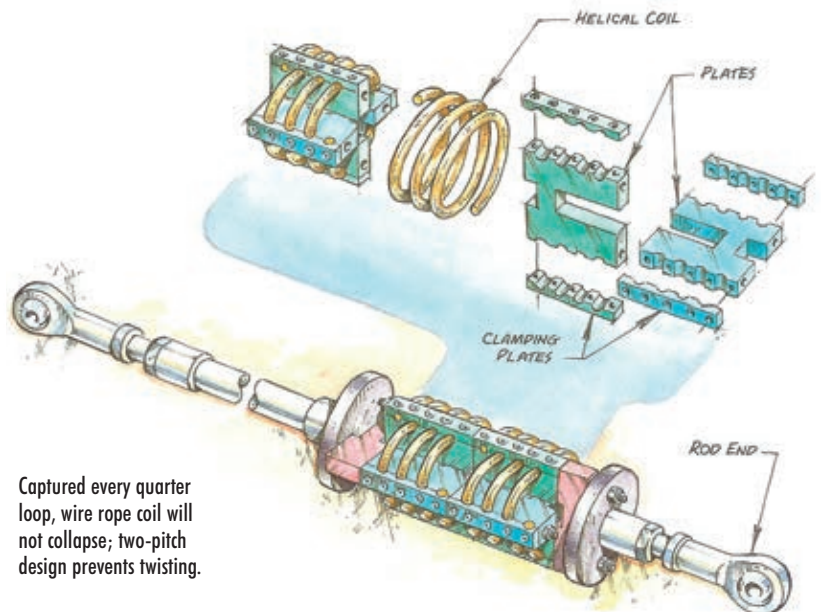
- Pipe Restraint
- Hydraulic Transients
- Power Generating Plants
- Chemical Plants
- Seismic Restraints
- Steady State Vibration
- Nuclear Plants
- Refineries
- Structural Vibration
- Wind Loading
- Pulp and Paper Mills

## WEAR™ Benefits

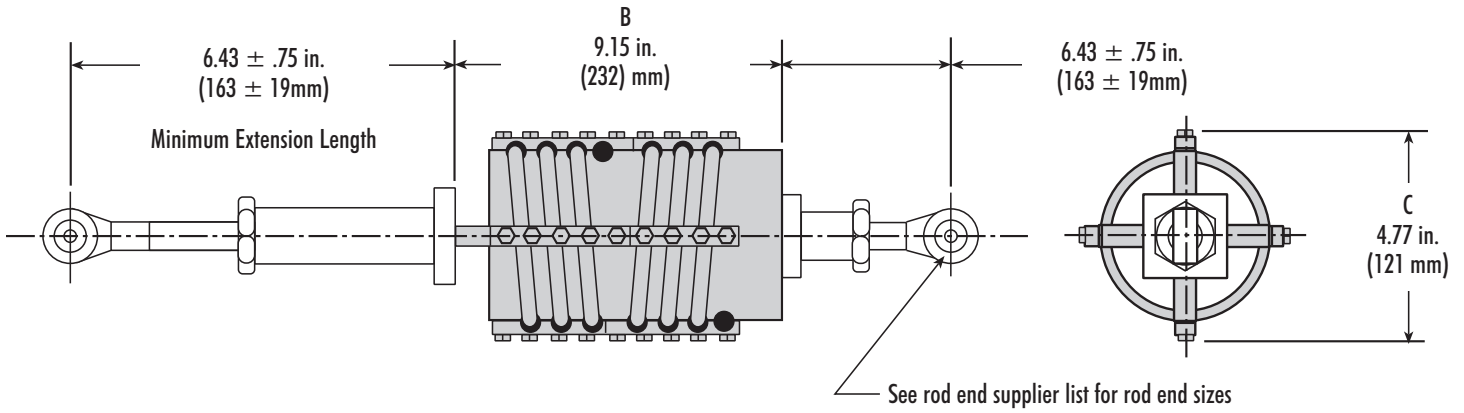
- Repeatable
- Environmentally Stable
- Low Structural Loading
- Dissipate Energy
- Wide Operating Temperature Range
- Proven Technology
- Simple Construction
- Corrosion Resistant
- High Cycle Fatigue Life
- No Maintenance

## Environmental Conditions

Normal Temperature:	-40° to 200° F/-40° to 100° C
Faulted Temperature:	-40° to 350° F/-40° to 175° C
Humidity:	100% RH
Radiation:	1 x 10 <sup>9</sup> RAD
Pressure:	-14.7 psi to 100 psi 0 atm to 7 atm



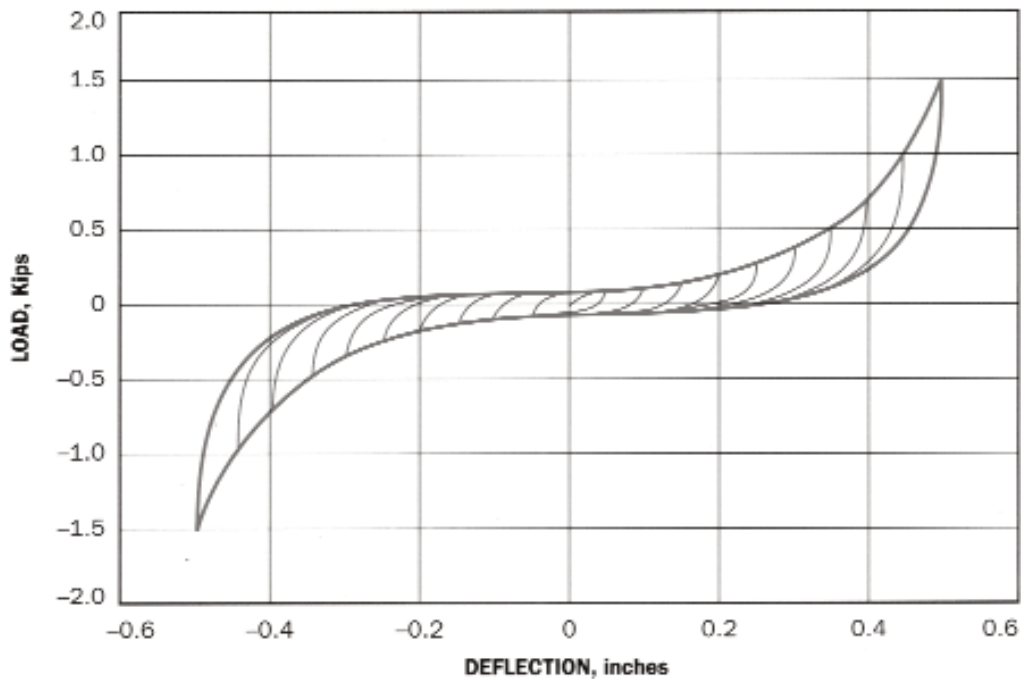
Captured every quarter loop, wire rope coil will not collapse; two-pitch design prevents twisting.



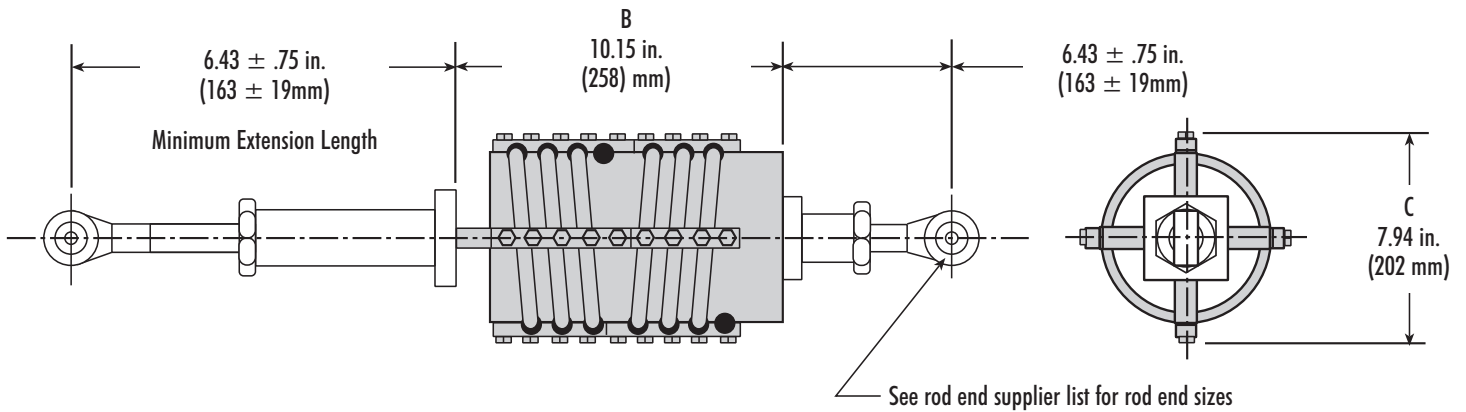
## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	15.5 lbs. 0.2 lbs./in.	7,0 kg. 0,04 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	1.2 Kips/in. 3.0 Kips/in.	210 N/mm 525 N/mm
<b>Stroke</b>	Maximum:	± 0.5 in.	± 12,7 mm

## Load vs. Deflection



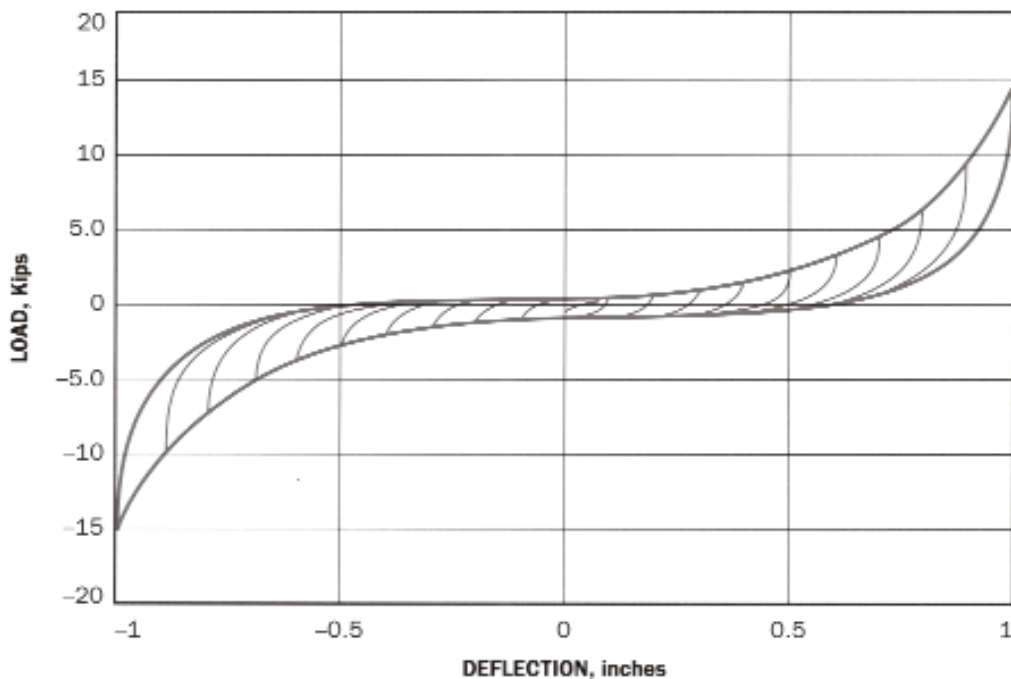
Specifications are subject to change without notice. Metric Data and/or actual curve simulations with dimensional data provided upon request. Contact your local distributor.



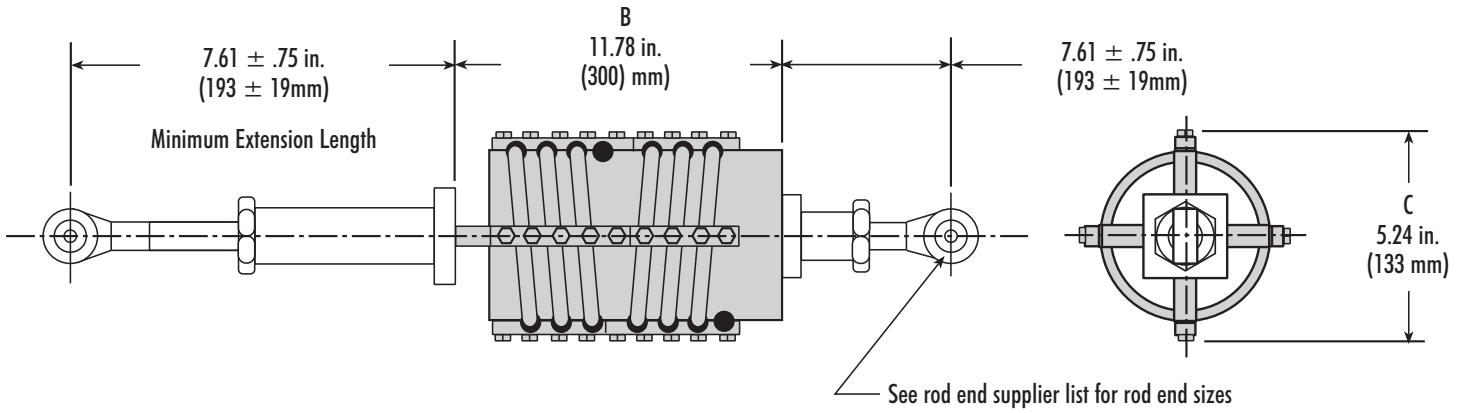
## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	15.5 lbs. 0.2 lbs./in.	7,0 kg. 0,04 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	0.6 Kips/in. 1.5 Kips/in.	105 N/mm 263 N/mm
<b>Stroke</b>	Maximum:	± 1.0 in.	± 25,4 mm

## Load vs. Deflection



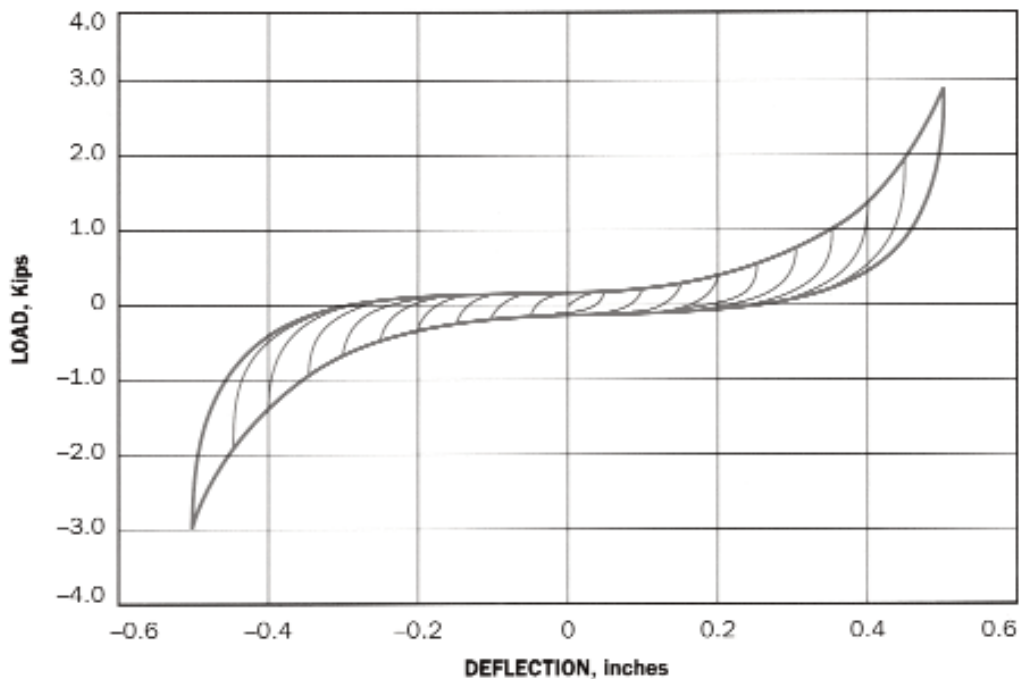
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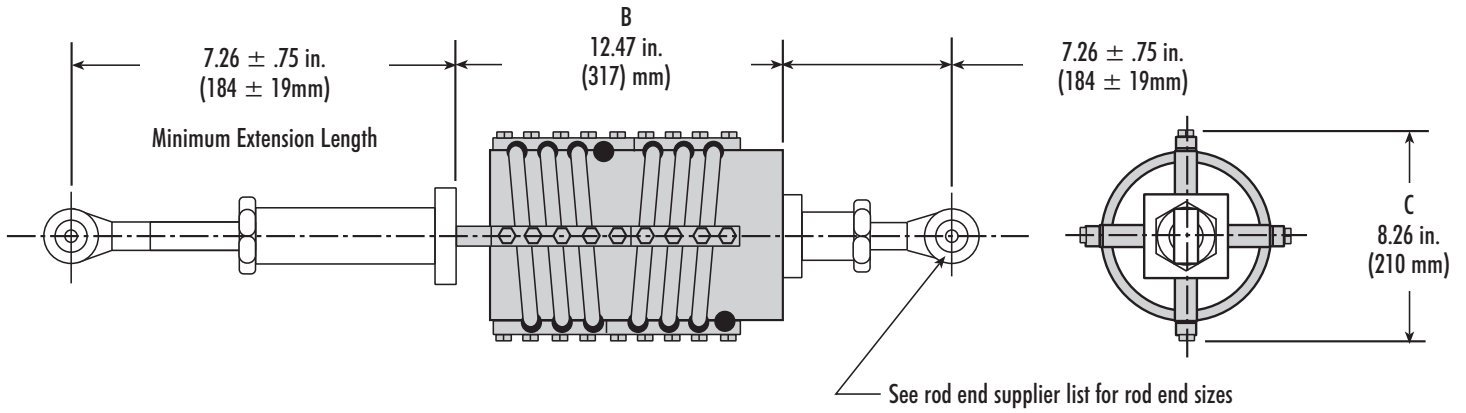
## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	32.0 lbs. 0.3 lbs./in.	14,5 kg. 0,05 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	2.4 Kips/in. 6.0 Kips/in.	420 N/mm 1050 N/mm
<b>Stroke</b>	Maximum:	± 0.5 in.	± 12,7 mm

## Load vs. Deflection



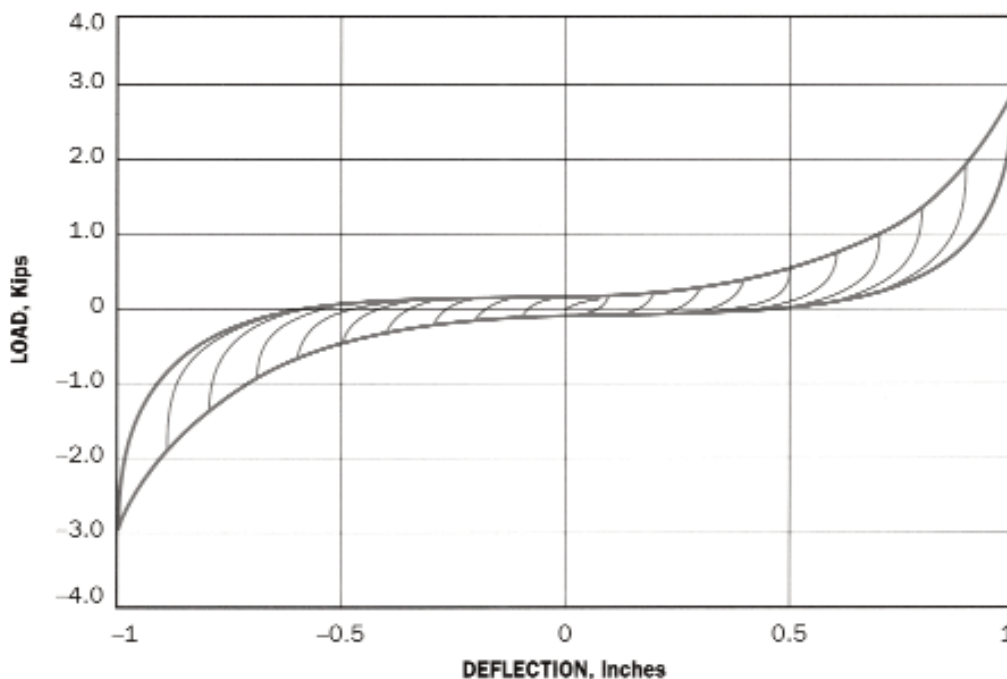
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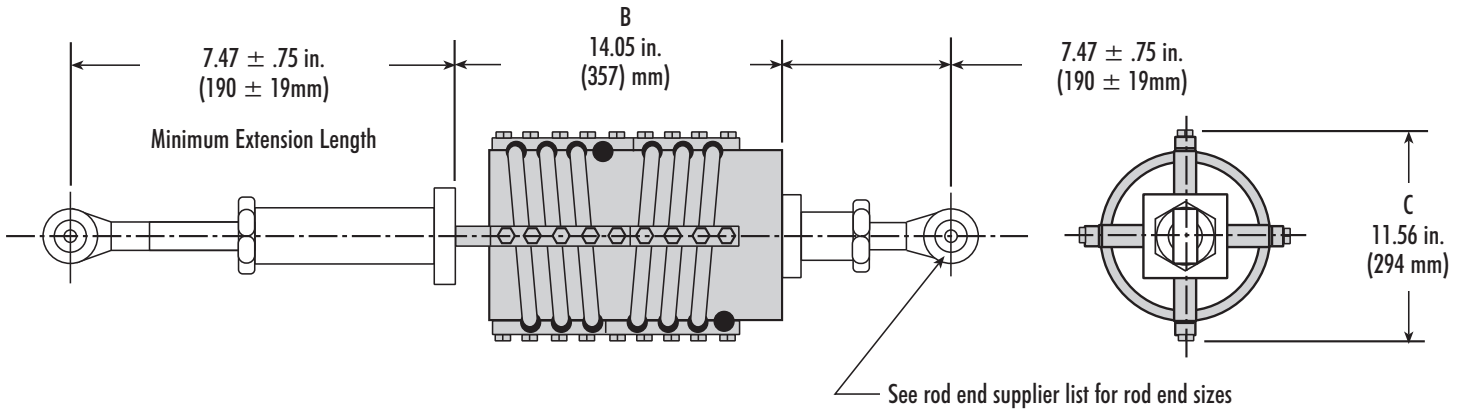
## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	48.5 lbs. 0.3 lbs./in.	22,0 kg. 0,05 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	$10 \pm 5\%$ $20 \pm 5\%$	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	1.2 Kips/in. 3.0 Kips/in.	210 N/mm 525 N/mm
<b>Stroke</b>	Maximum:	$\pm 0.5$ in.	$\pm 25,4$ mm

## Load vs. Deflection



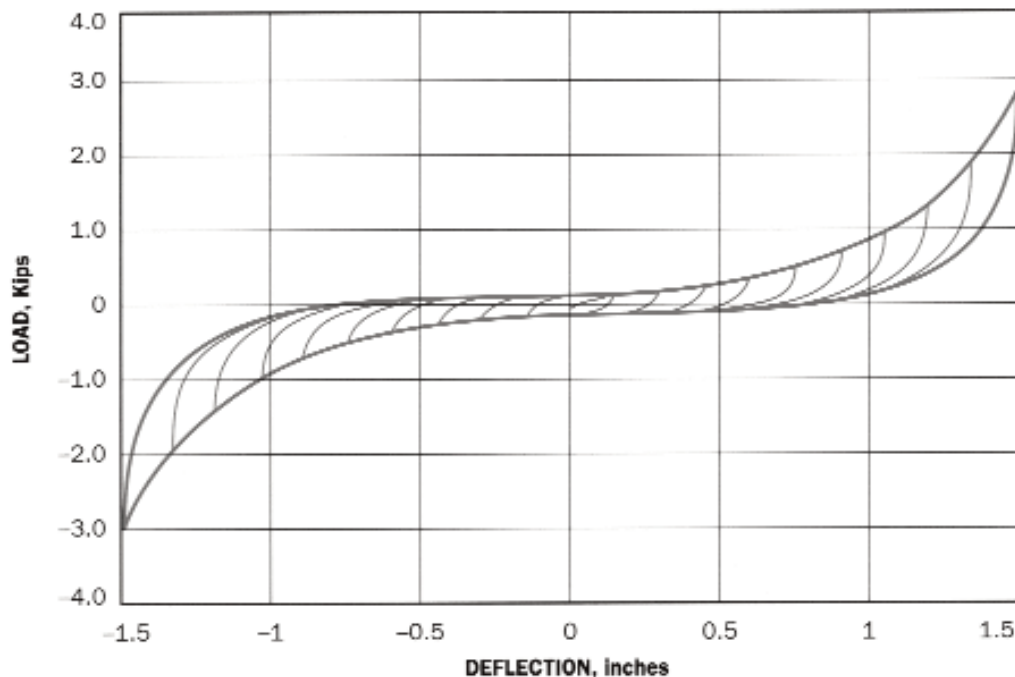
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## Specifications

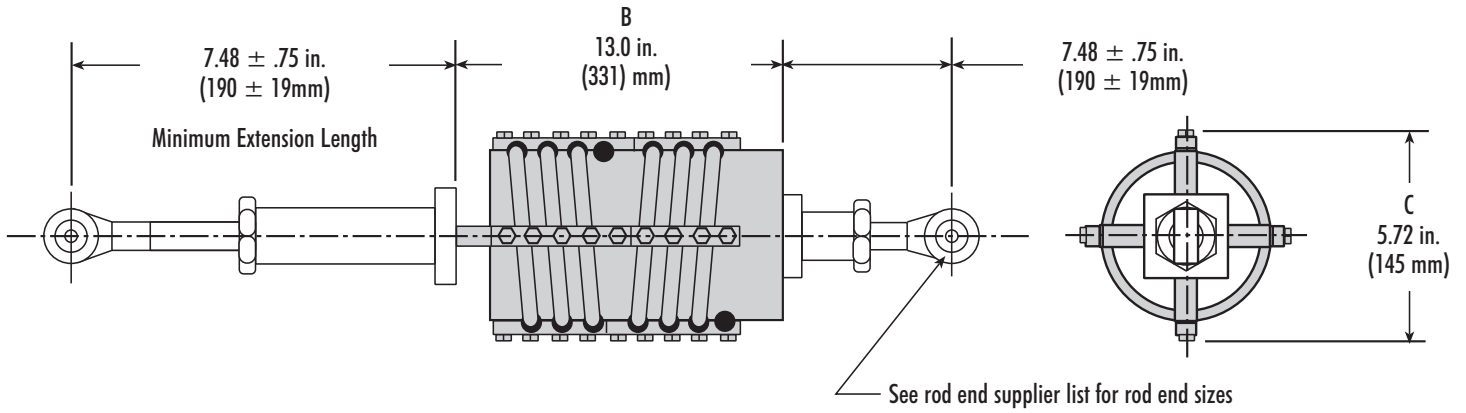
<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	73.0 lbs. 0.3 lbs./in.	7,0 kg. 0,04 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	0.8 Kips/in. 2.0 Kips/in.	140 N/mm 350 N/mm
<b>Stroke</b>	Maximum:	± 0.5 in.	± 38,1 mm

## Load vs. Deflection



Specifications are subject to change without notice. Metric Data and/or actual curve simulations with dimensional data provided upon request. Contact your local distributor.

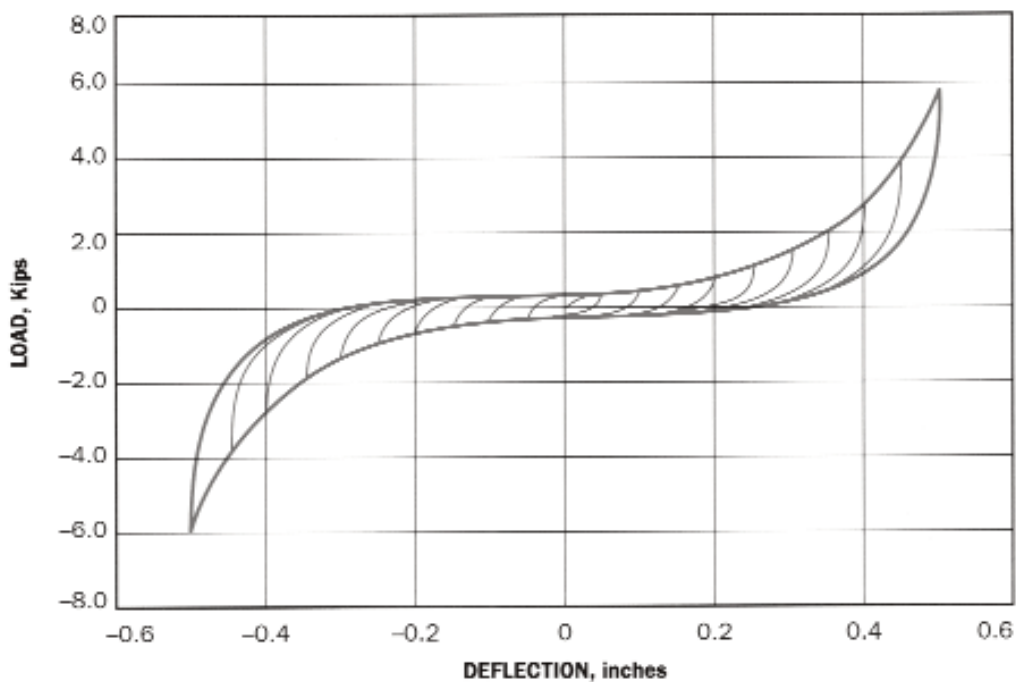




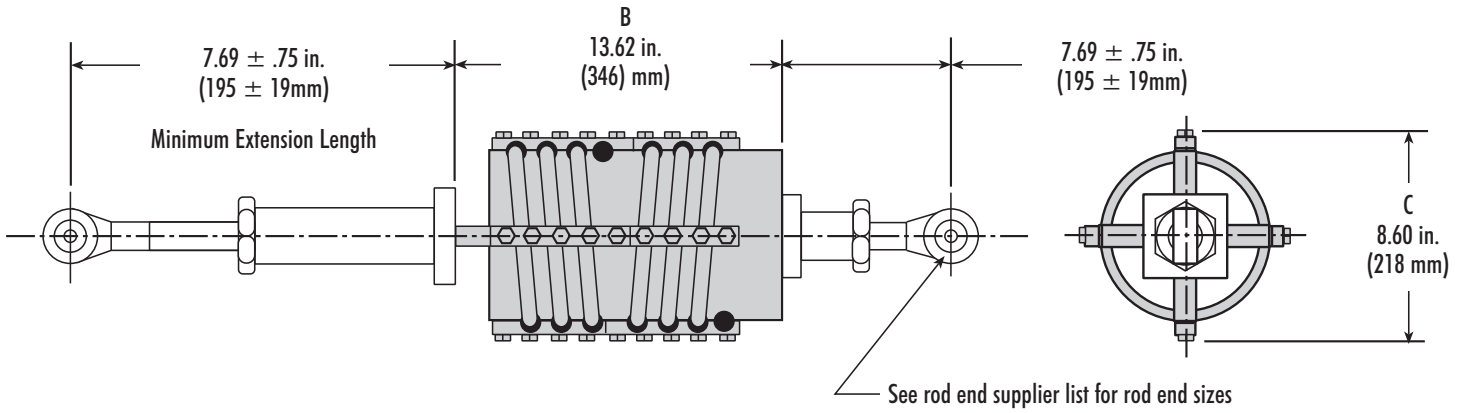
## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	44.0 lbs. 0.3 lbs./in.	20,0 kg. 0,05 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	4.8 Kips/in. 12.0 Kips/in.	840 N/mm 2100 N/mm
<b>Stroke</b>	Maximum:	± 0.5 in.	± 12,7 mm

## Load vs. Deflection



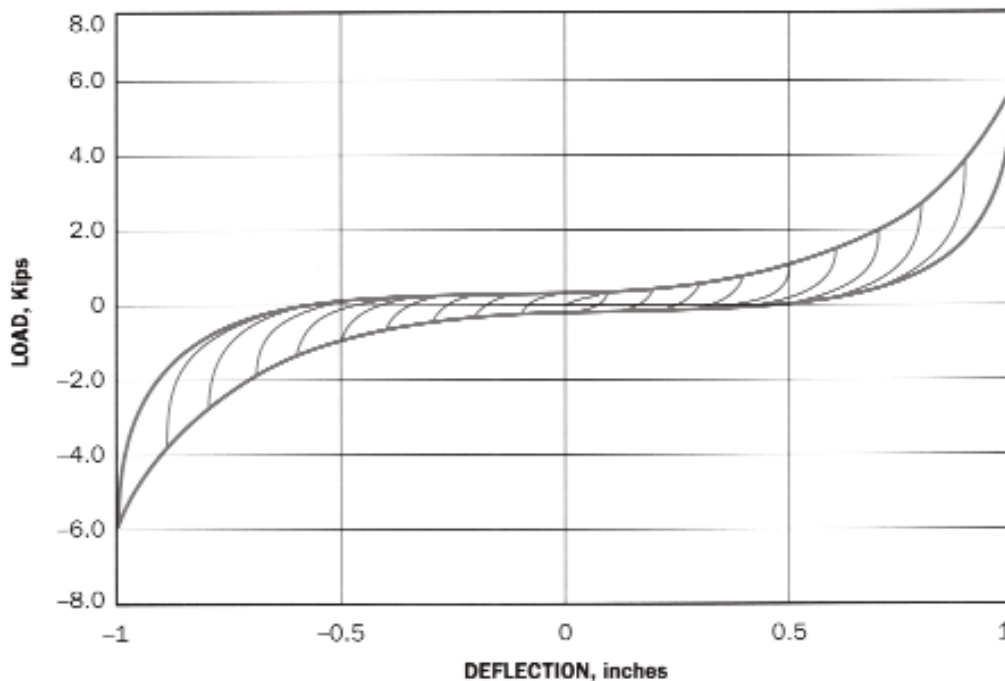
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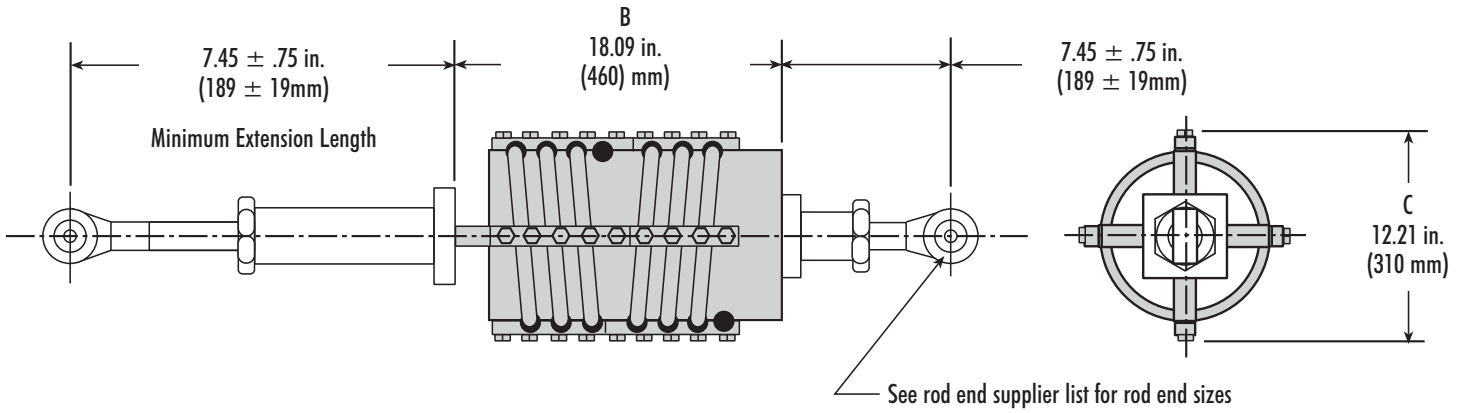
## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	67.0 lbs. 0.3 lbs./in.	31,0 kg. 0,05 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	2.4 Kips/in. 6.0 Kips/in.	420 N/mm 1050 N/mm
<b>Stroke</b>	Maximum:	± 1.0 in.	± 25,4 mm

## Load vs. Deflection



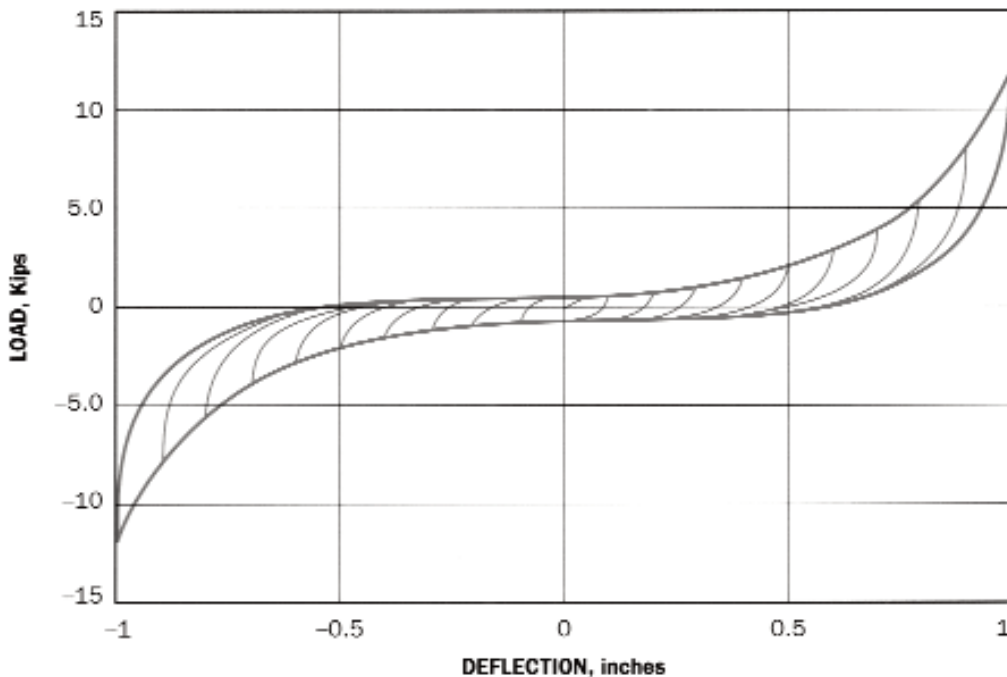
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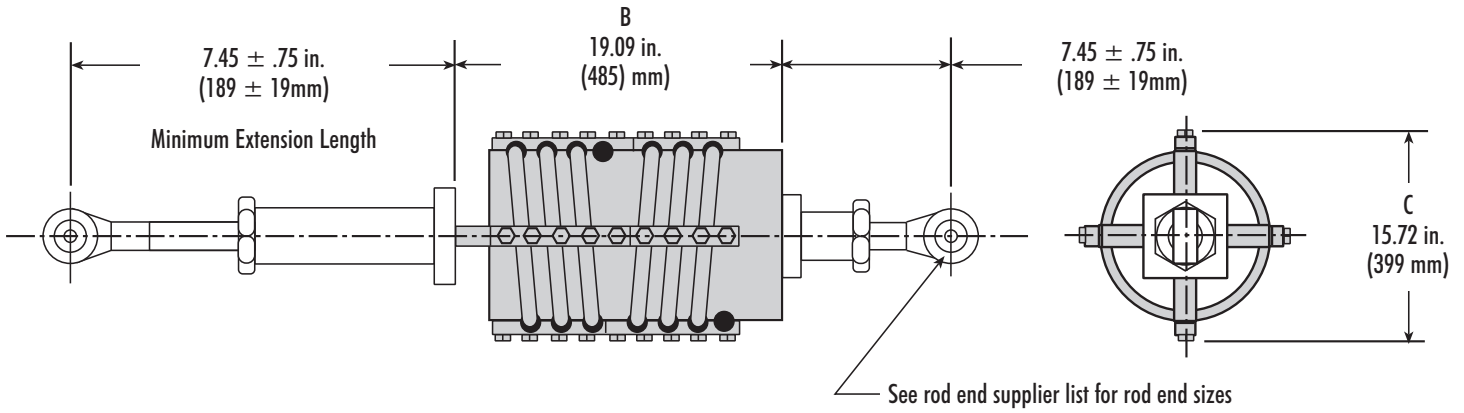
## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	120.0 lbs. 0.3 lbs./in.	54,0 kg. 0,05 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	1.6 Kips/in. 4.0 Kips/in.	280 N/mm 700 N/mm
<b>Stroke</b>	Maximum:	± 1.5 in.	± 38,1 mm

## Load vs. Deflection



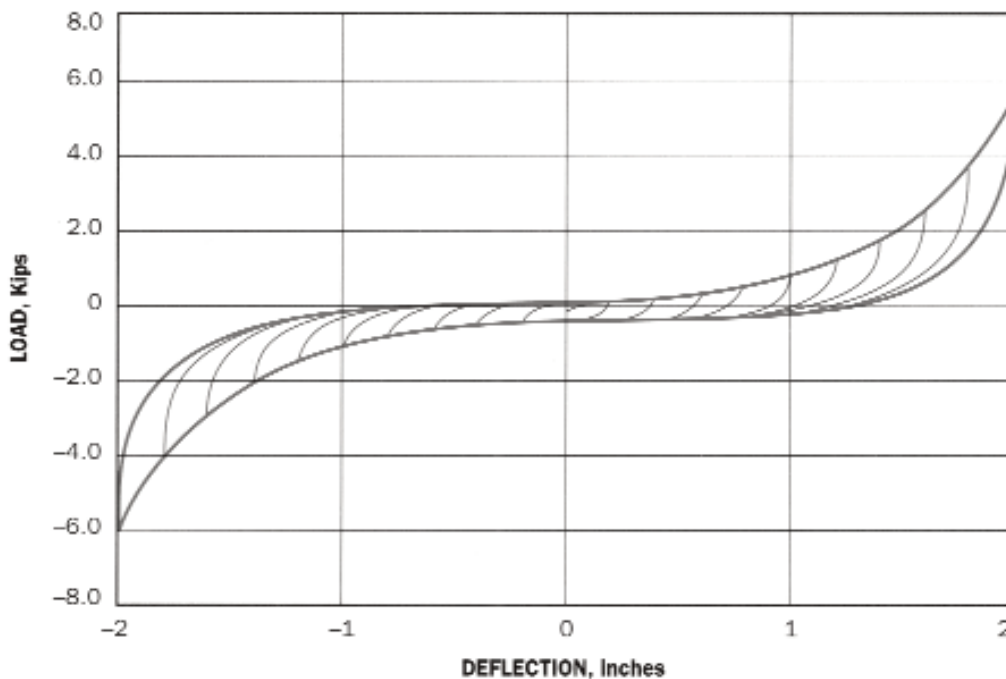
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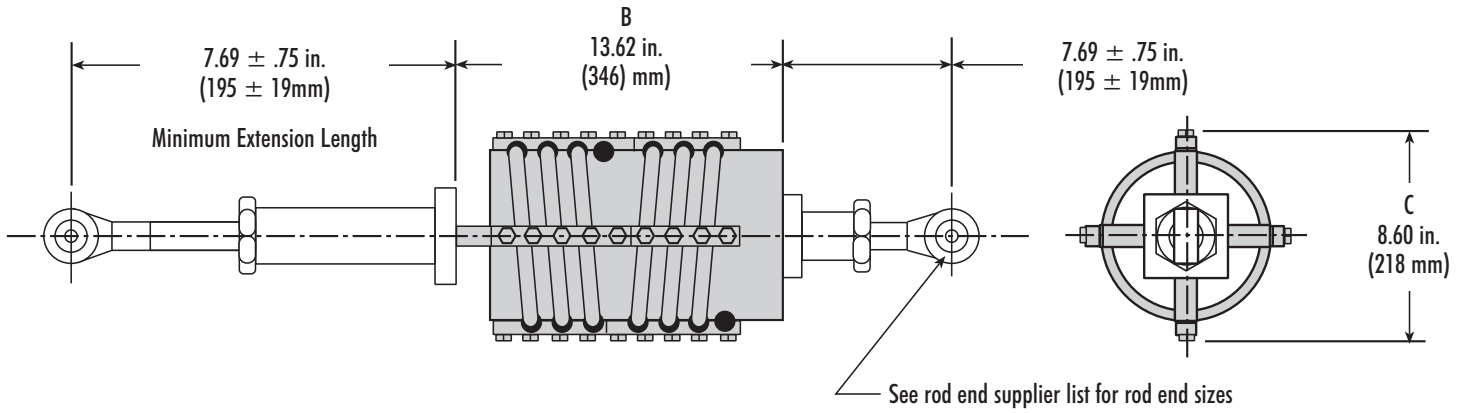
## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	160.0 lbs. 0.3 lbs./in.	73,0 kg. 0,05 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	1.2 Kips/in. 3.0 Kips/in.	210 N/mm 525 N/mm
<b>Stroke</b>	Maximum:	± 2.0 in.	± 50,8 mm

## Load vs. Deflection



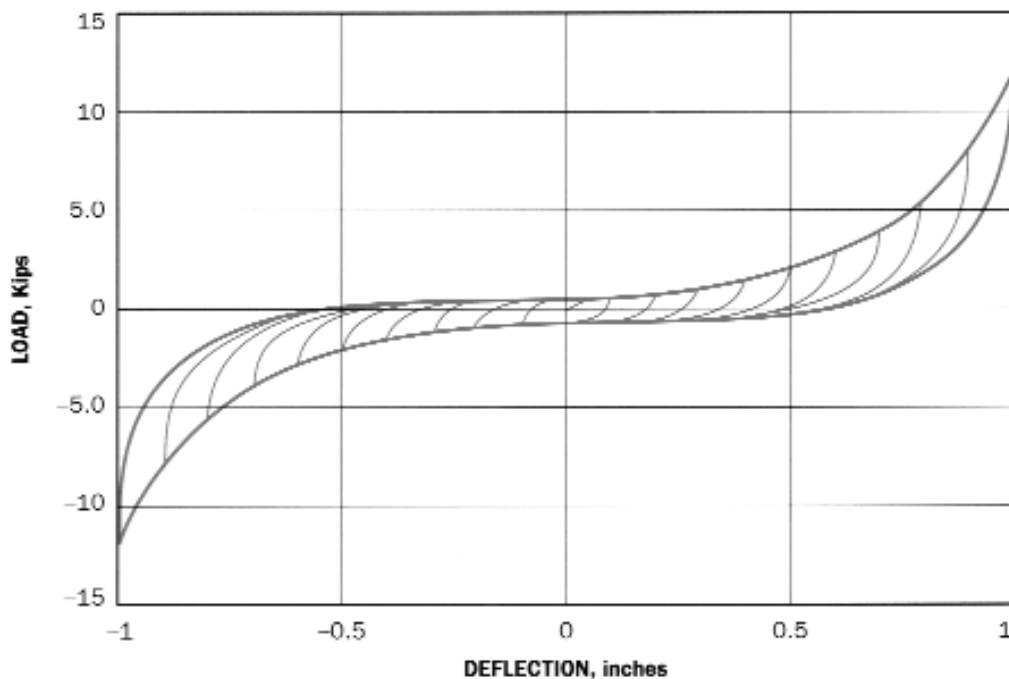
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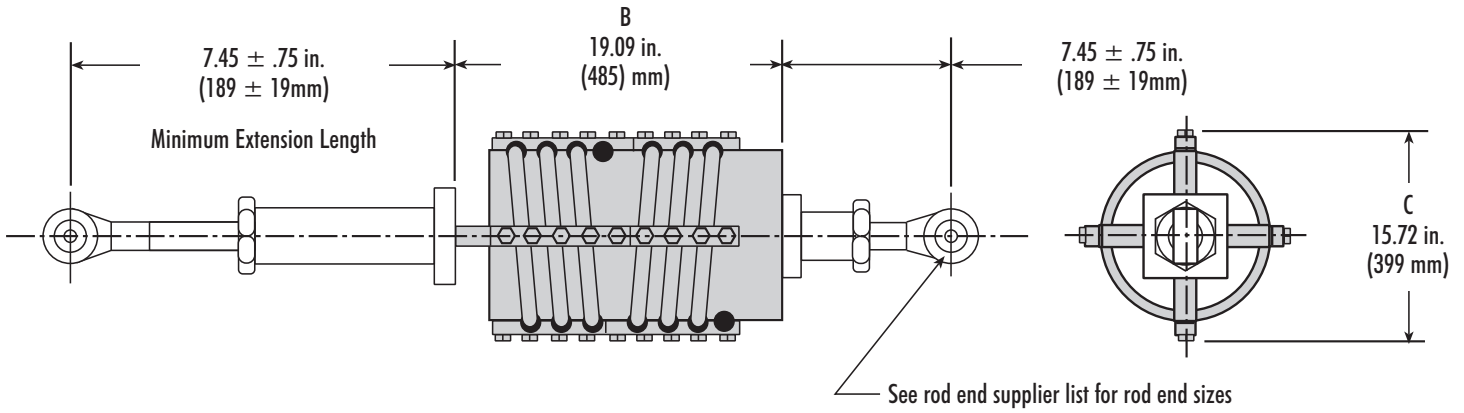
## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	67.0 lbs. 0.3 lbs./in.	31,0 kg. 0,05 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	2.4 Kips/in. 6.0 Kips/in.	420 N/mm 1050 N/mm
<b>Stroke</b>	Maximum:	± 0.5 in.	± 12,7 mm

## Load vs. Deflection



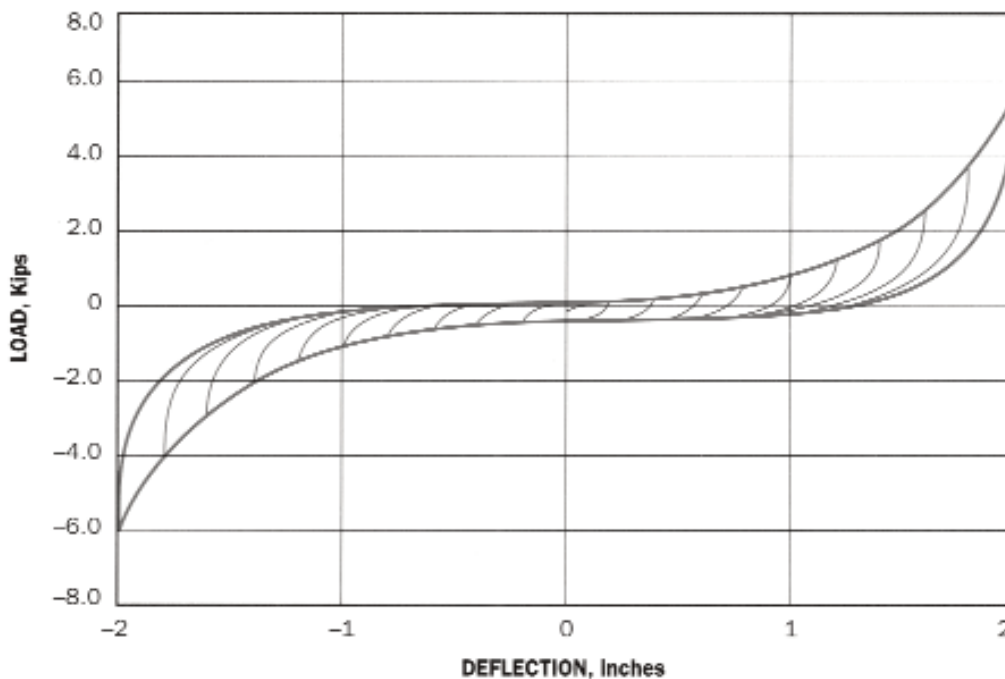
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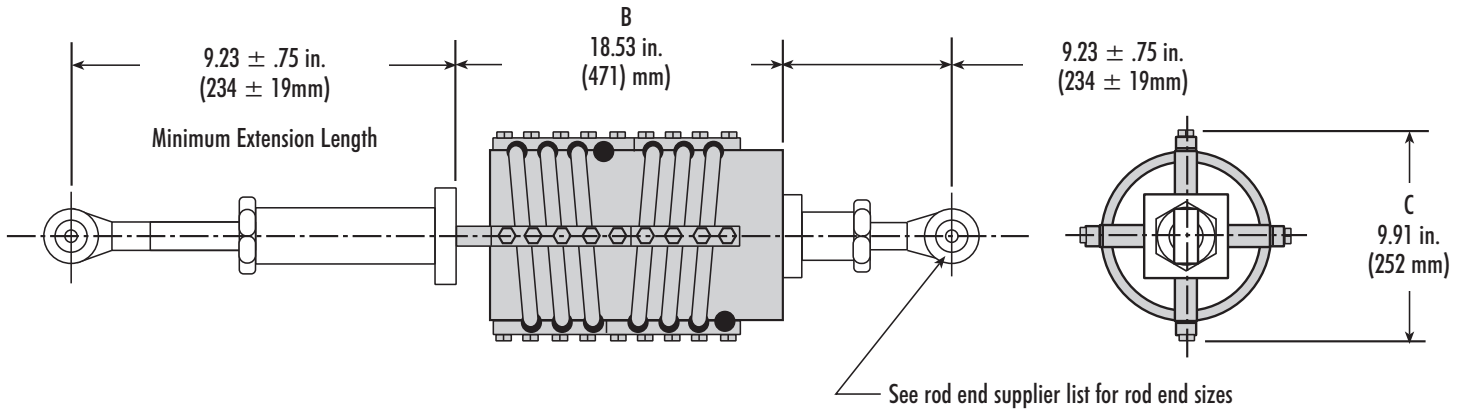
## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	160.0 lbs. 0.3 lbs./in.	73,0 kg. 0,05 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	1.2 Kips/in. 3.0 Kips/in.	210 N/mm 525 N/mm
<b>Stroke</b>	Maximum:	± 2.0 in.	± 50,8 mm

## Load vs. Deflection



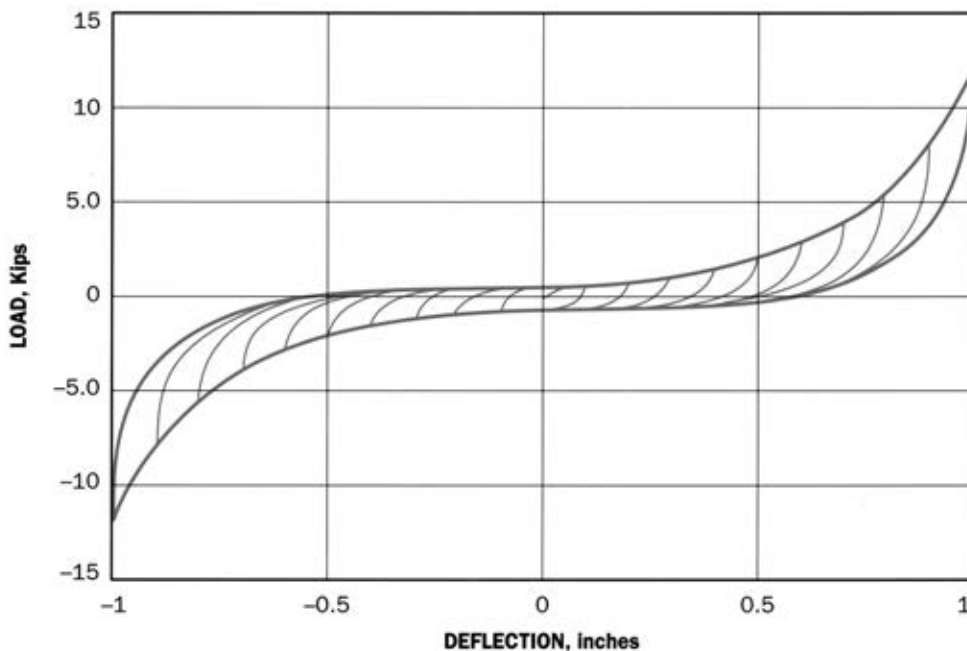
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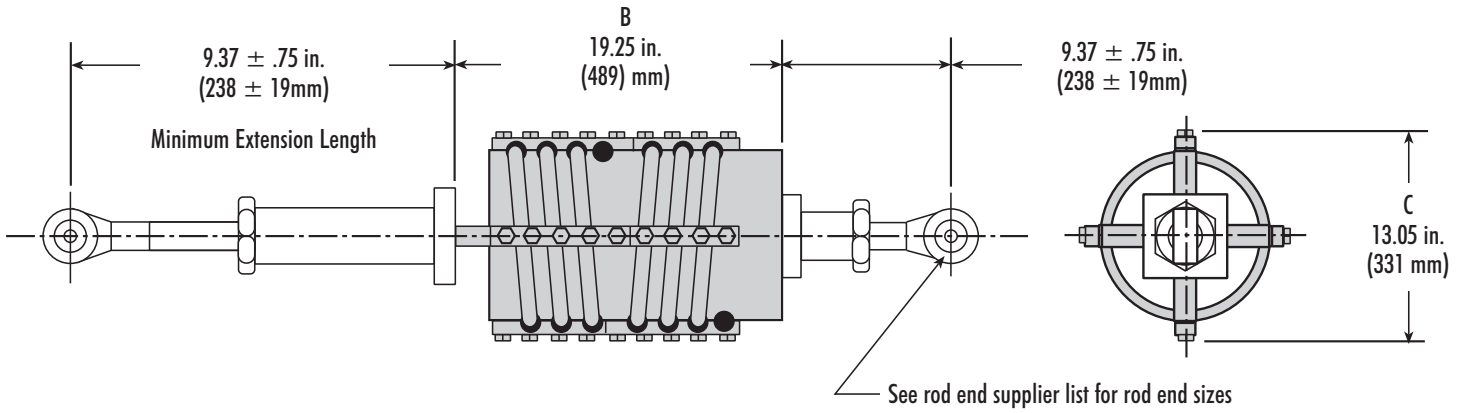
## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	135.0 lbs. 0.4 lbs./in.	61,0 kg. 0,07 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	4.8 Kips/in. 12.0 Kips/in.	840 N/mm 2100 N/mm
<b>Stroke</b>	Maximum:	± 1.0 in.	± 25,4 mm

## Load vs. Deflection



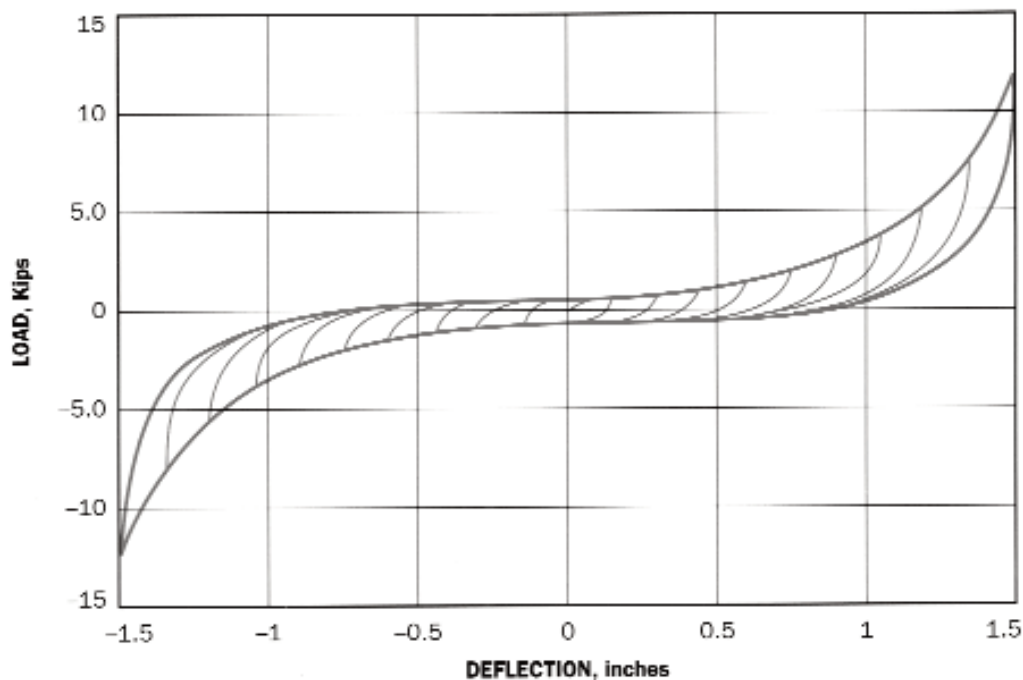
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## Specifications

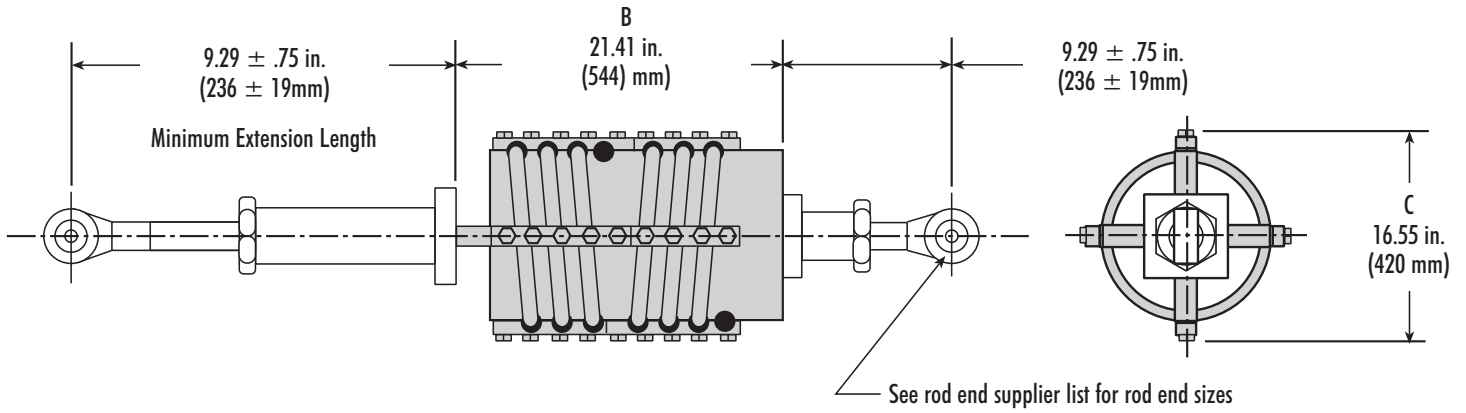
<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	187.0 lbs. 0.4 lbs./in.	85,0 kg. 0,07 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	3.2 Kips/in. 8.0 Kips/in.	560 N/mm 1400 N/mm
<b>Stroke</b>	Maximum:	± 1.5 in.	± 38,1 mm

## Load vs. Deflection



Specifications are subject to change without notice. Metric Data and/or actual curve simulations with dimensional data provided upon request. Contact your local distributor.

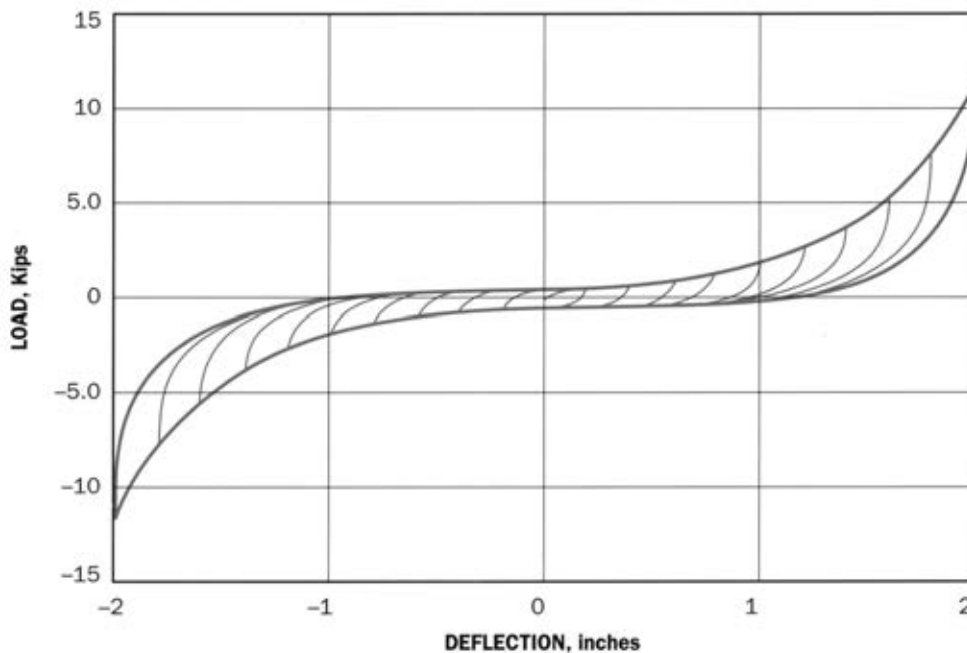




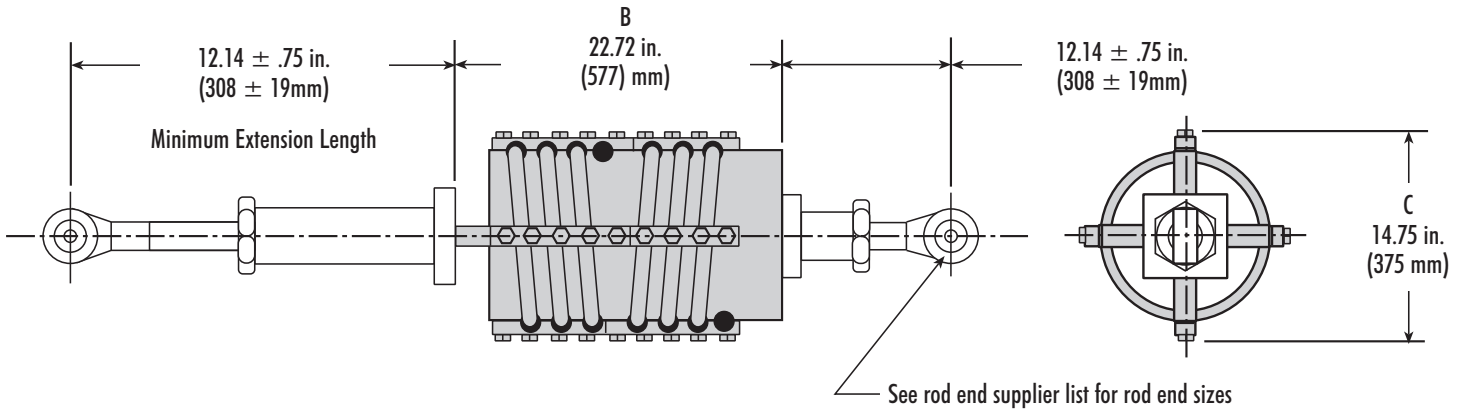
## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	260.0 lbs. 0.4 lbs./in.	118,0 kg. 0,07 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	2.4 Kips/in. 6.0 Kips/in.	420 N/mm 1050 N/mm
<b>Stroke</b>	Maximum:	± 2.0 in.	± 50,8 mm

## Load vs. Deflection



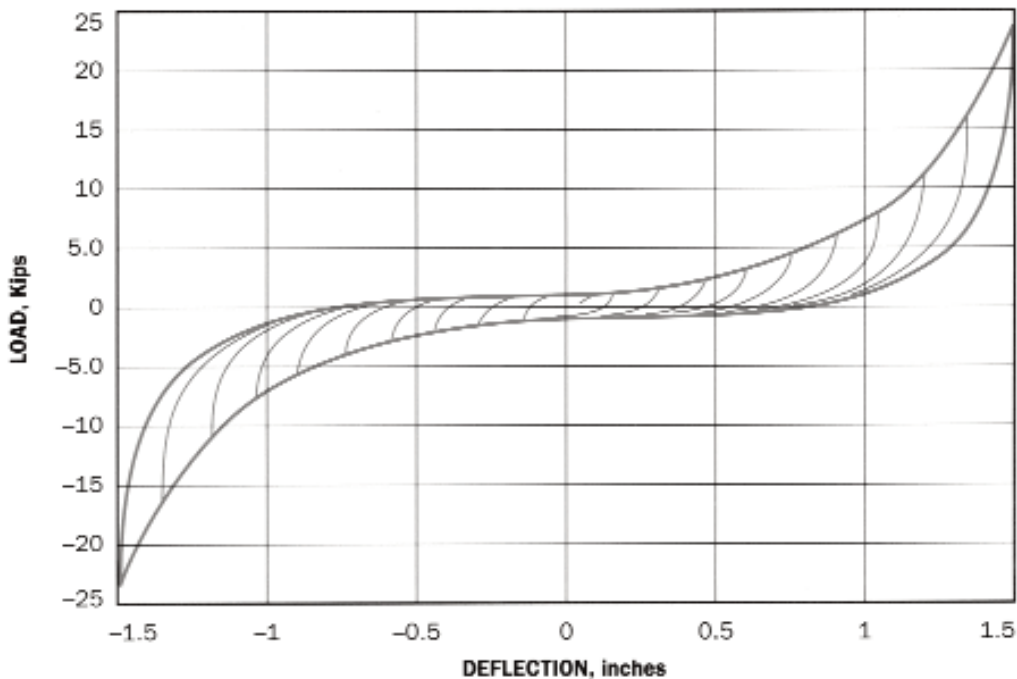
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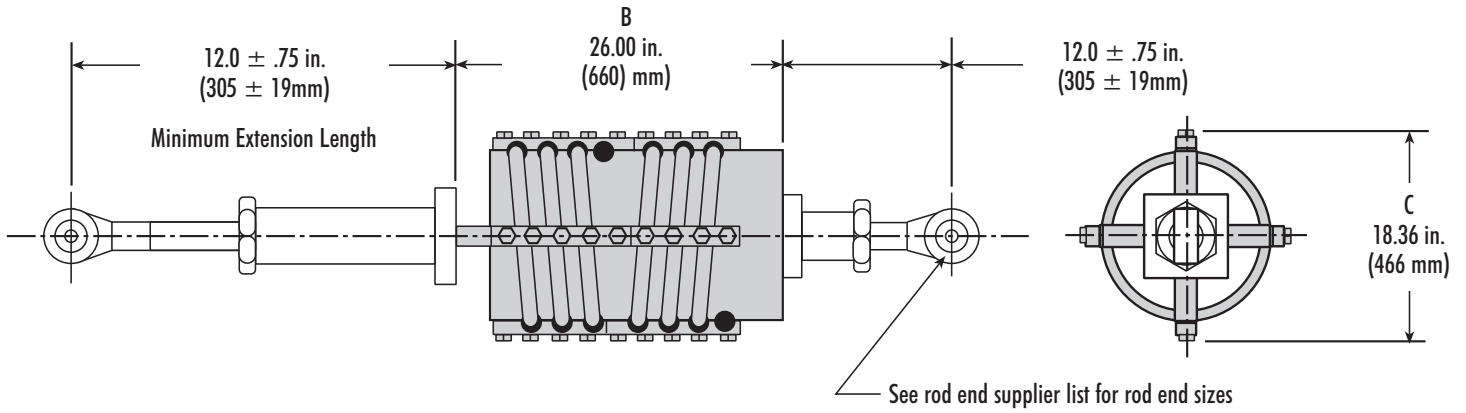
## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	332.0 lbs. 1.0 lbs./in.	151,0 kg. 0,02 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	6.4 Kips/in. 16.0 Kips/in.	1120 N/mm 2800 N/mm
<b>Stroke</b>	Maximum:	± 1.5 in.	± 38,1 mm

## Load vs. Deflection



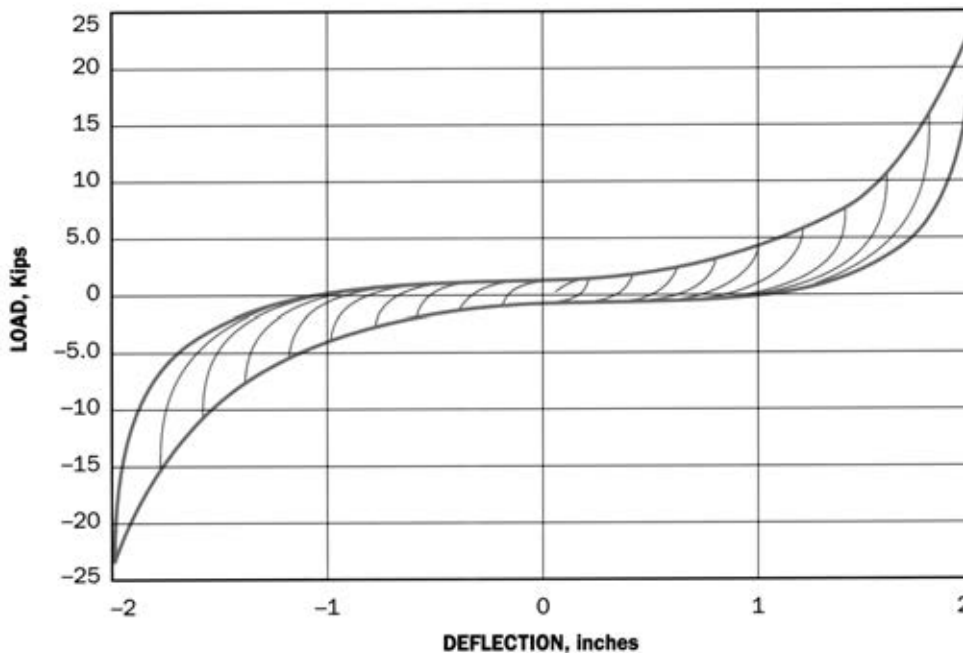
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## Specifications

<b>Unit Weight</b>	Total Minimum Weight: Additional Weight per Extension Length:	446.0 lbs. 1.0 lbs./in.	202,0 kg. 0,02 kg/cm
<b>Damping</b>	At 100% Stroke: At 10% Stroke:	10 ± 5% 20 ± 5%	
<b>Spring Rate</b>	Mid-Stroke: Max-Stroke:	4.8 Kips/in. 12.0 Kips/in.	840 N/mm 2100 N/mm
<b>Stroke</b>	Maximum:	± 2.0 in.	± 50,8 mm

## Load vs. Deflection



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[www.enidine.com](http://www.enidine.com)

**An ITT Company**

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