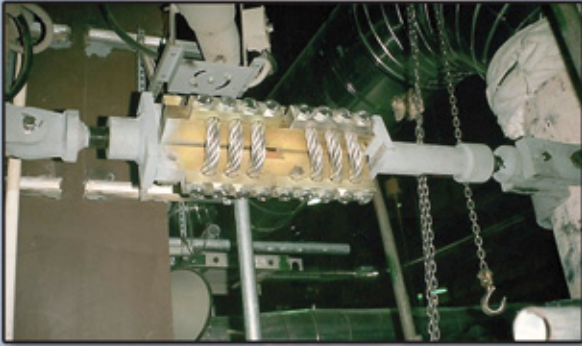
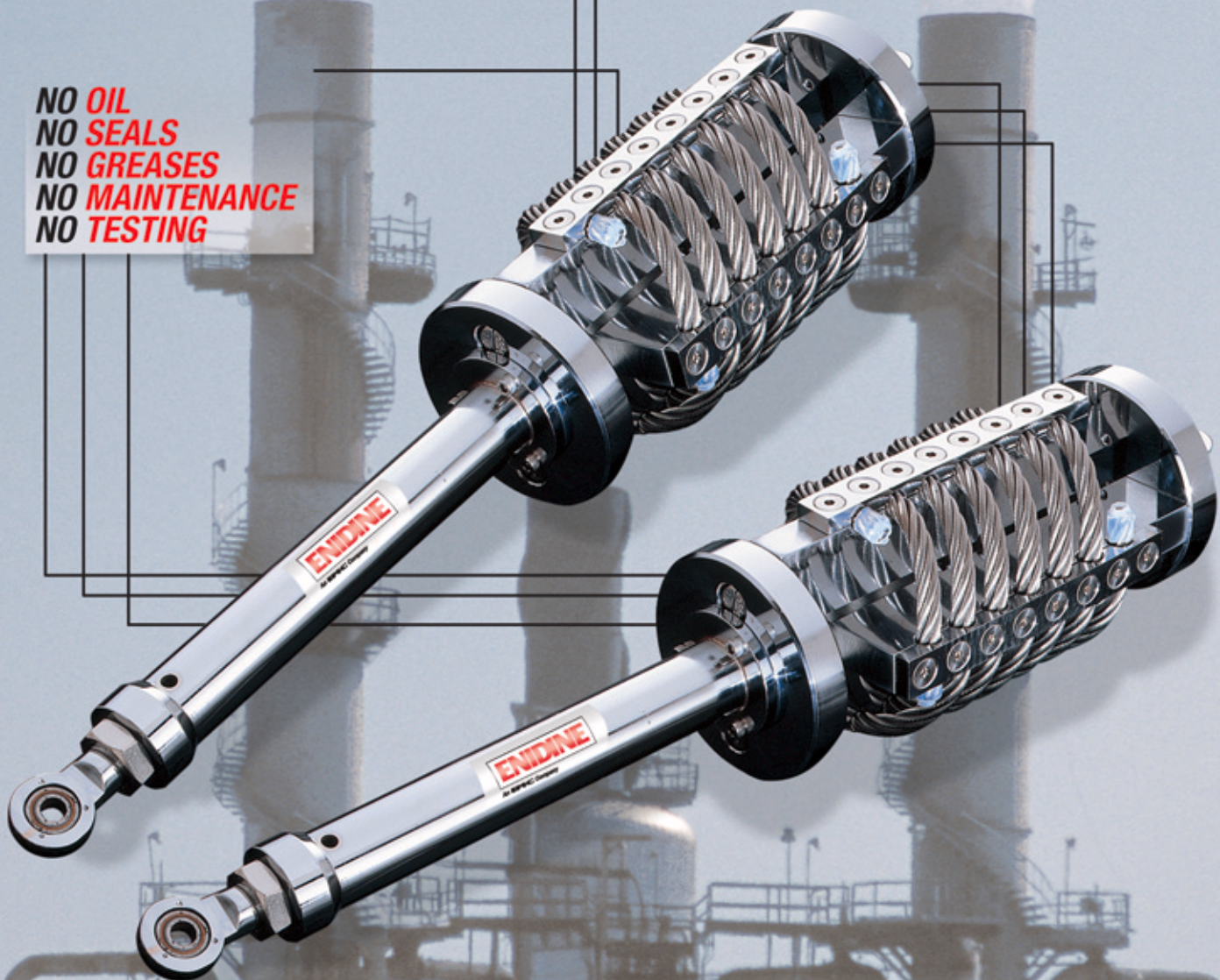


WEAR™ Pipe Restraint Vibration Isolator

Application and
Selection Guide



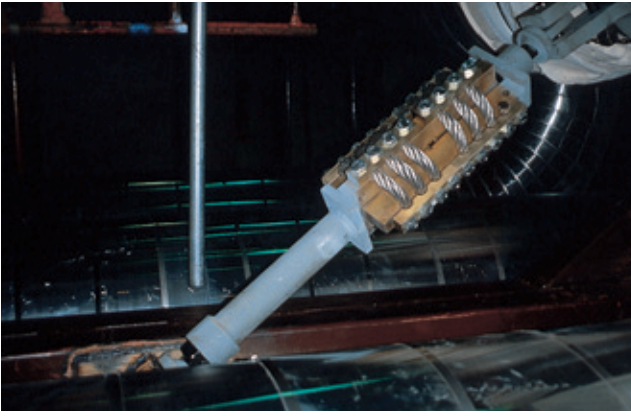
NO OIL
NO SEALS
NO GREASES
NO MAINTENANCE
NO TESTING



ENIDINE

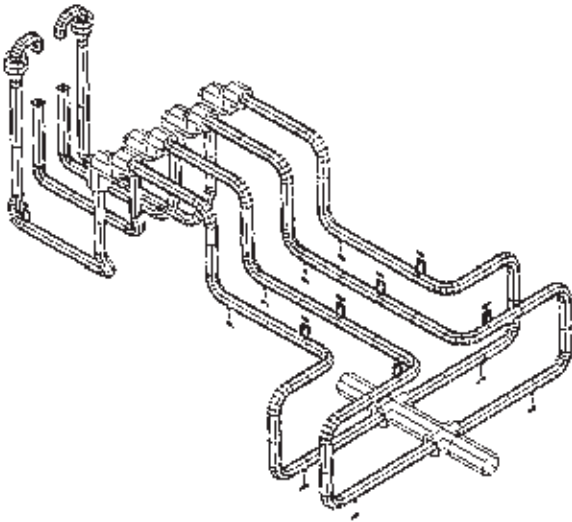
An IMC Company

WEAR™ Pipe Restraint and Vibration Isolator



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

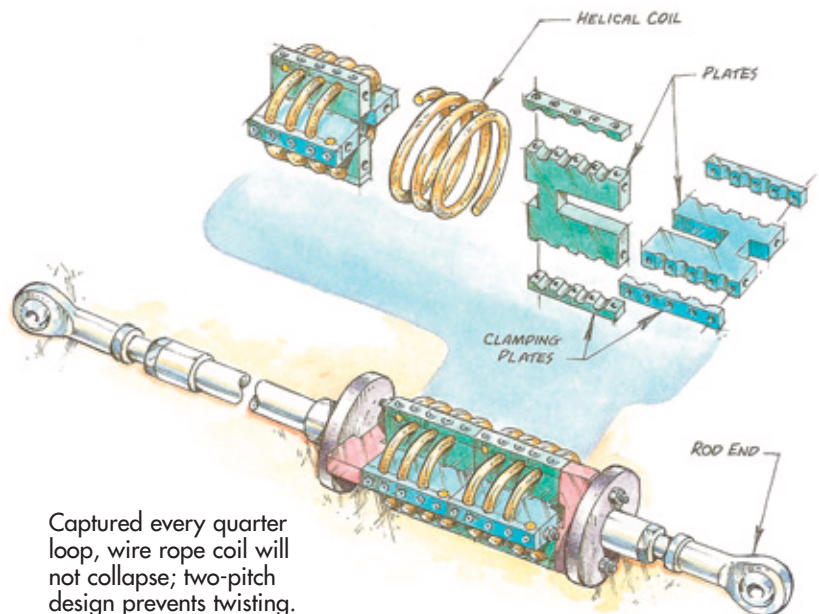
- Pipe Restraint
- Hydraulic Transients
- Power Generating Plants
- Chemical Plants
- Seismic Restraints
- Steady State Vibration
- Nuclear Plants
- Refineries
- Structural Vibration
- Wind Loading
- Pulp and Paper Mills

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

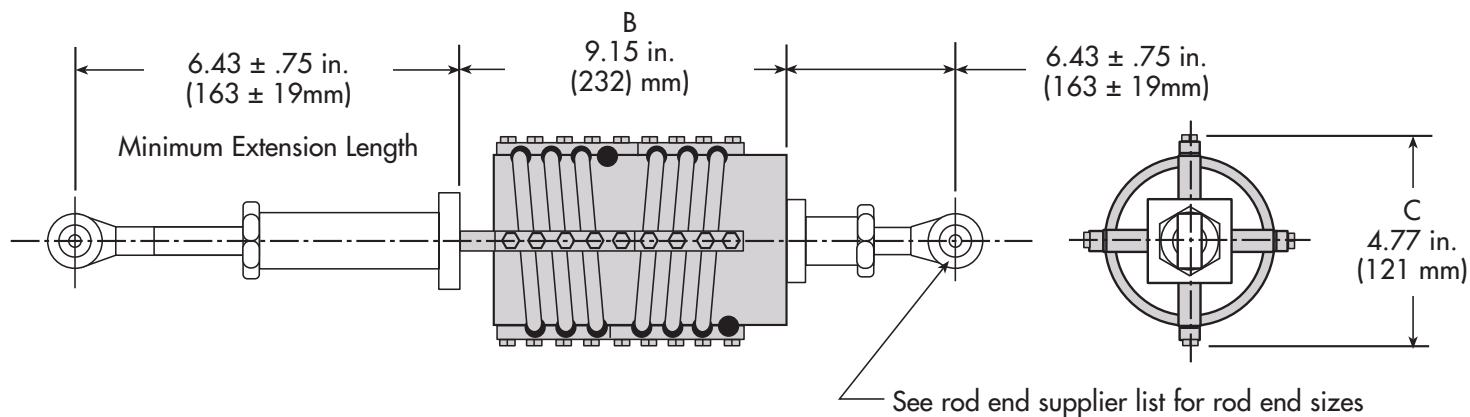
Normal Temperature:	-40° to 200° F / -40° to 100° C
Faulted Temperature:	-40° to 350° F / -40° to 175° C
Humidity:	100% RH
Radiation:	1×10^9 RAD
Pressure:	-14.7 psi to 100 psi 0 atm to 7 atm



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

ENIDINE

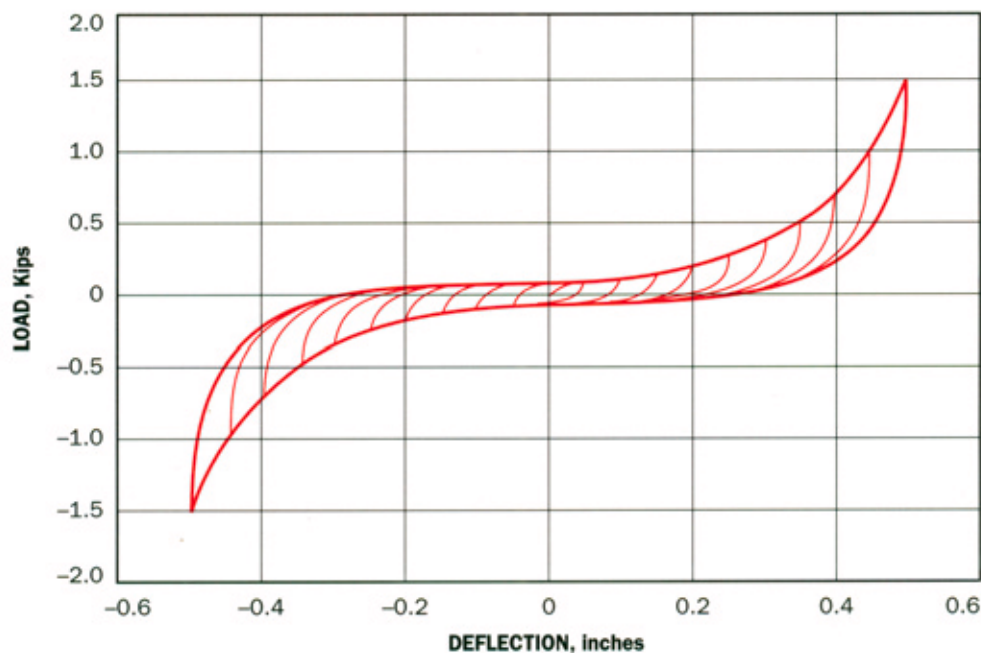
An IMC Company



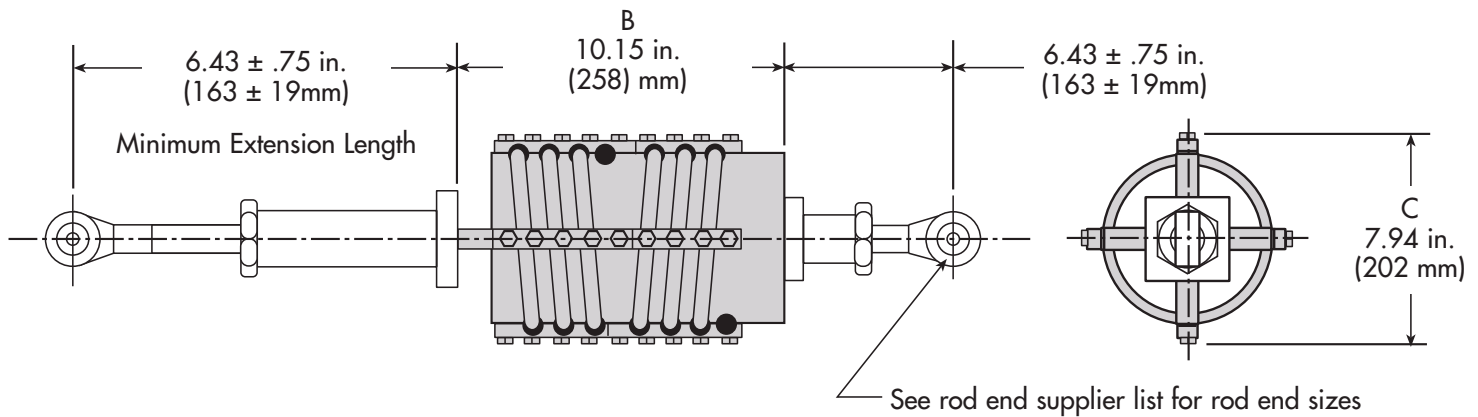
Specifications

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

Load vs. Deflection



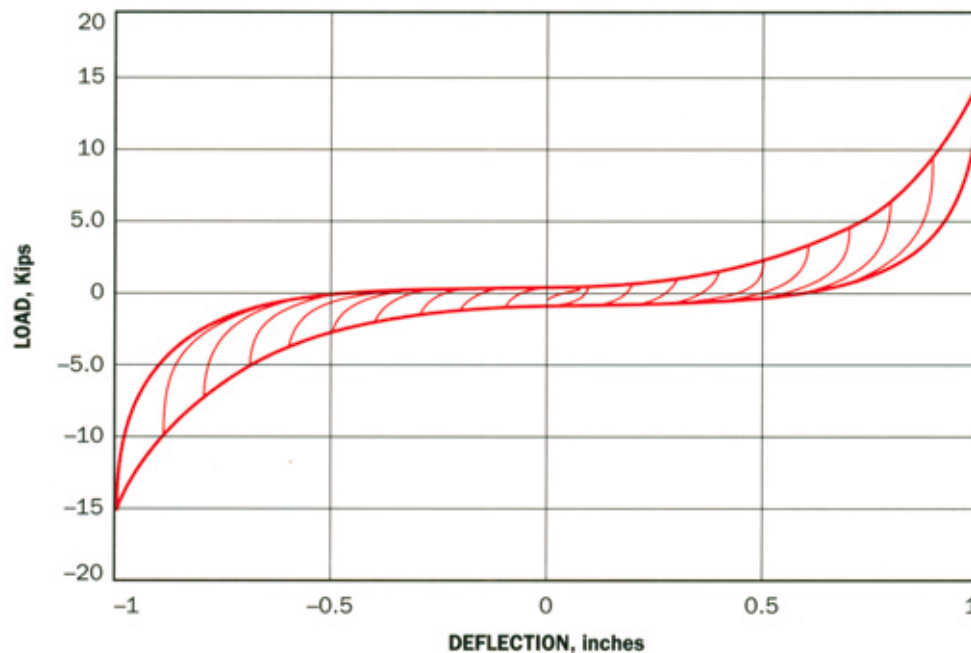
Specifications are subject to change without notice. Metric Data and/or actual curve simulations with dimensional data provided upon request. Contact your local distributor.



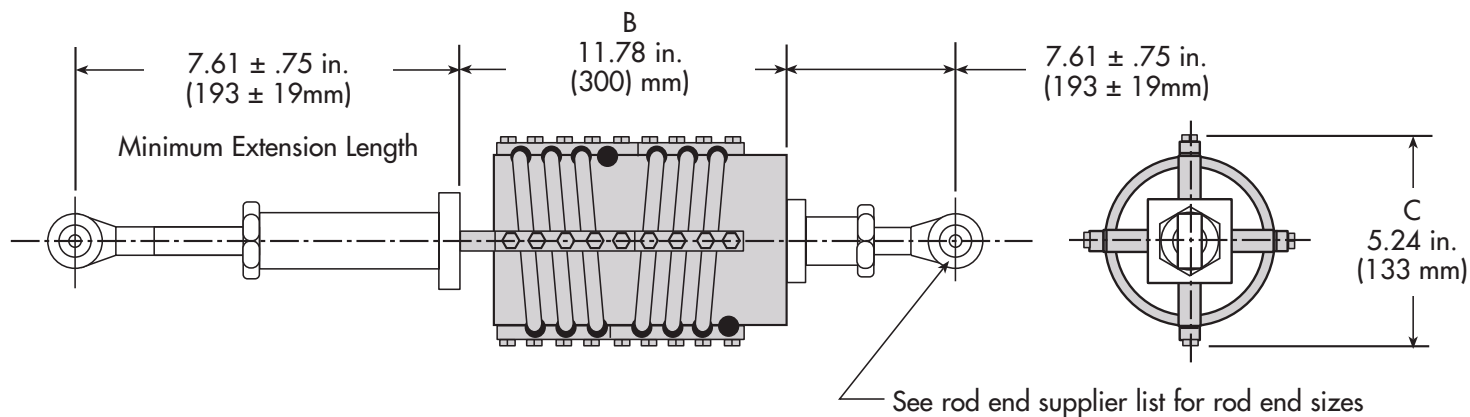
Specifications

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

Load vs. Deflection



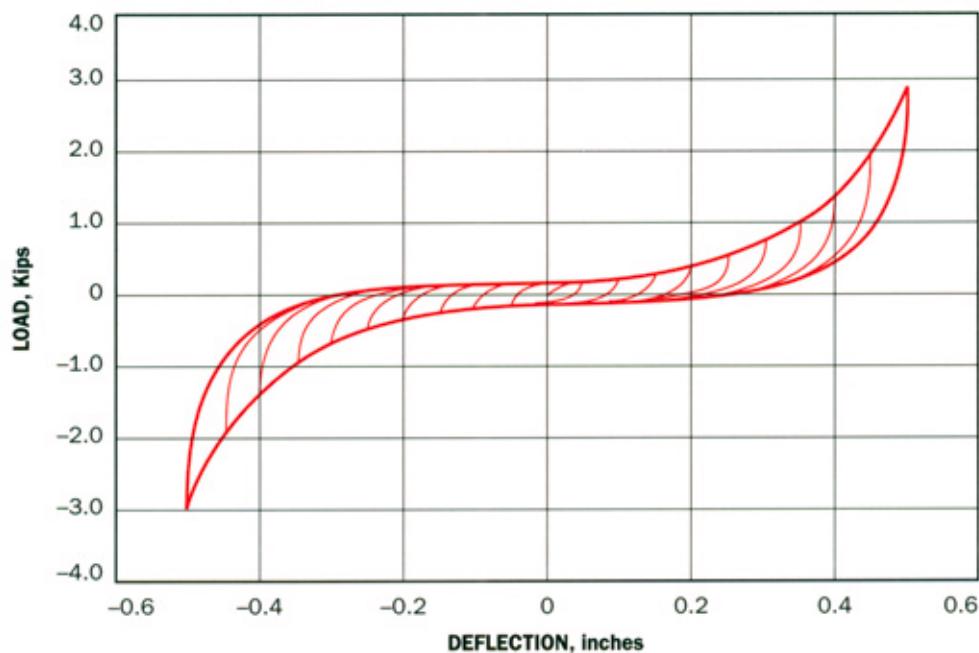
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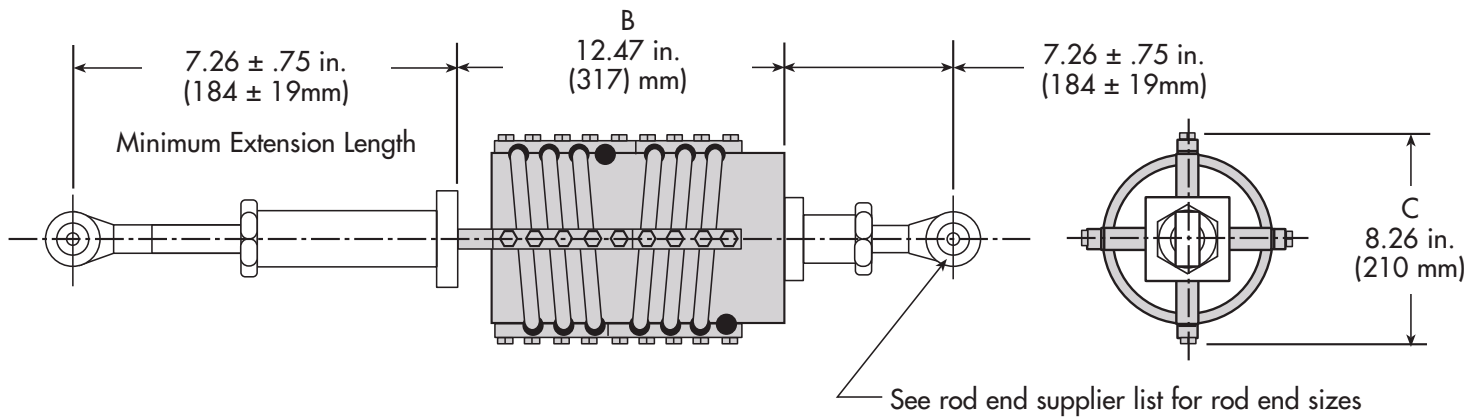
Specifications

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

Load vs. Deflection



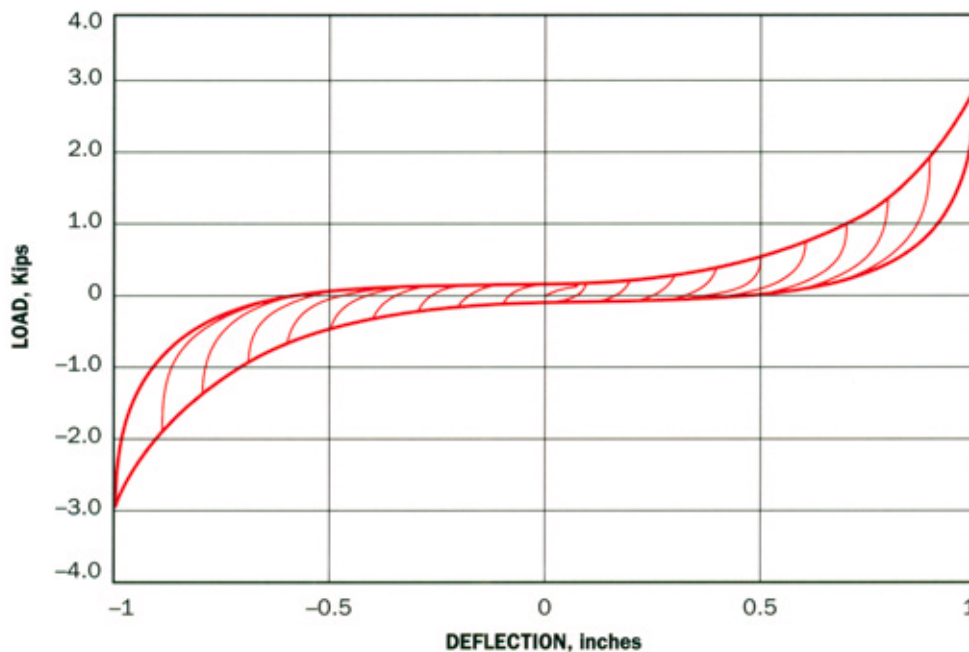
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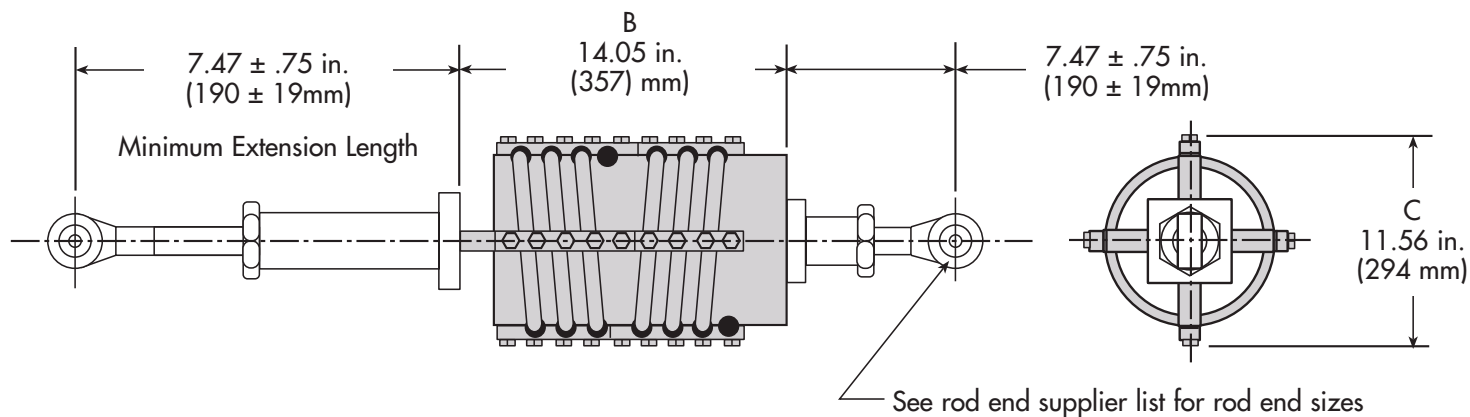
Specifications

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

Load vs. Deflection



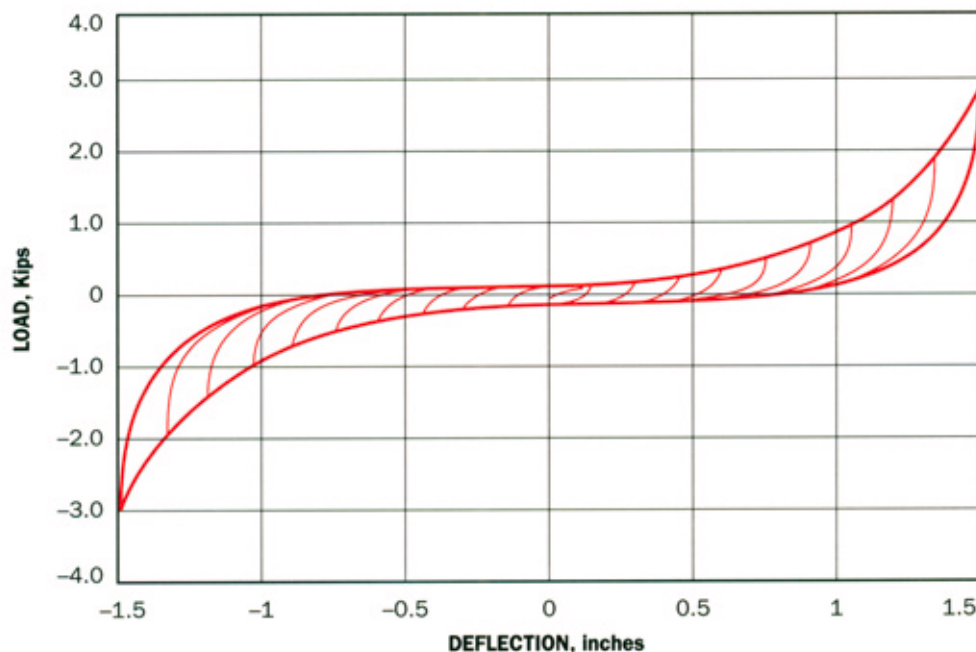
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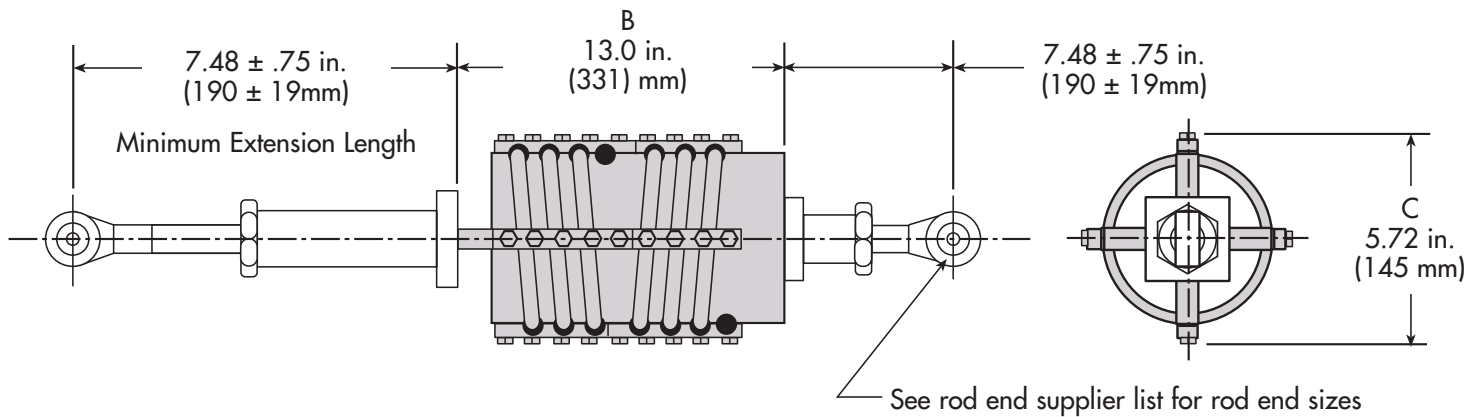
Specifications

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

Load vs. Deflection



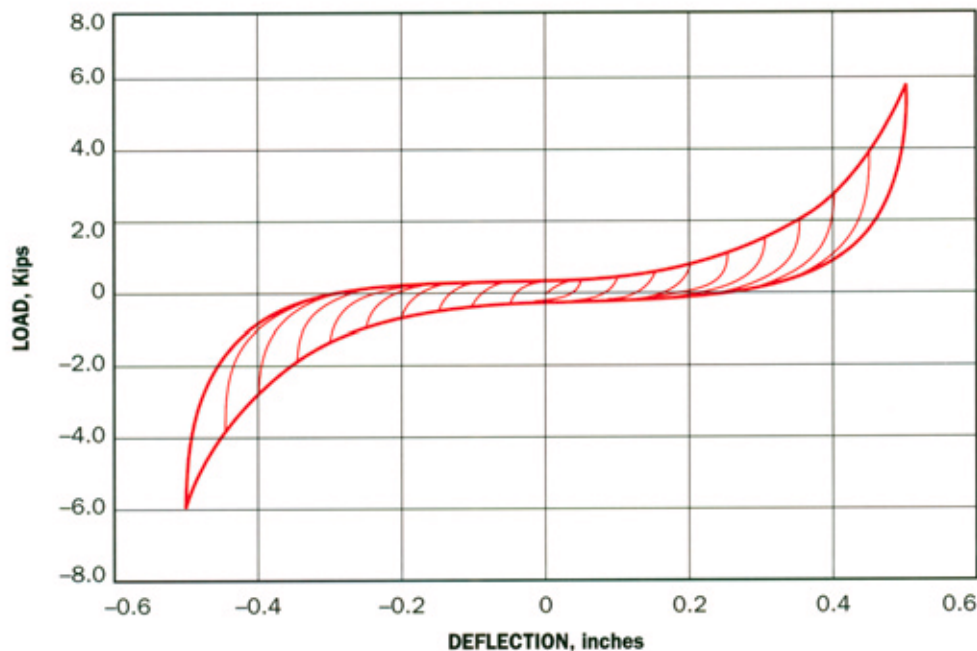
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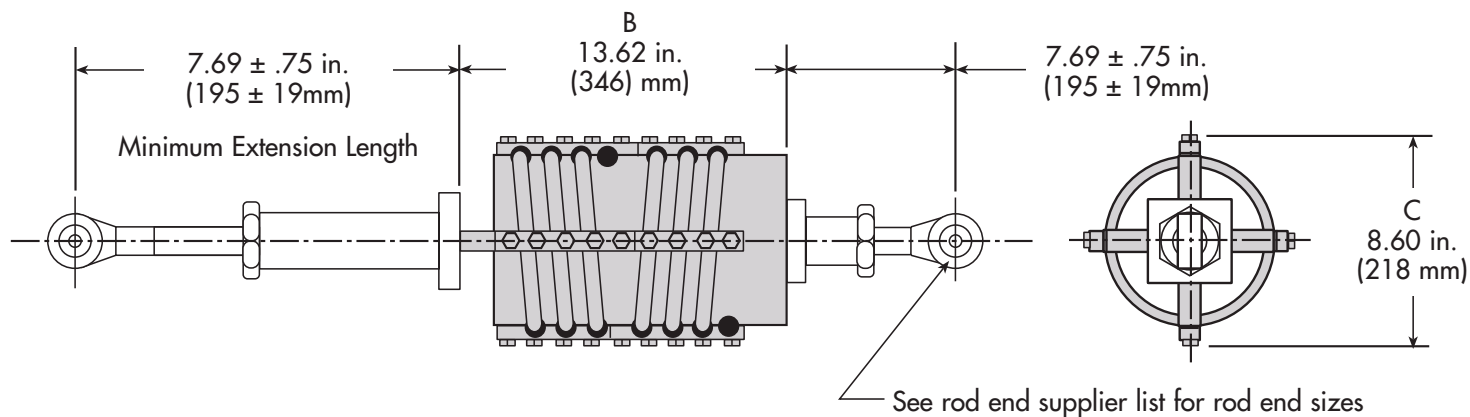
Specifications

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

Load vs. Deflection



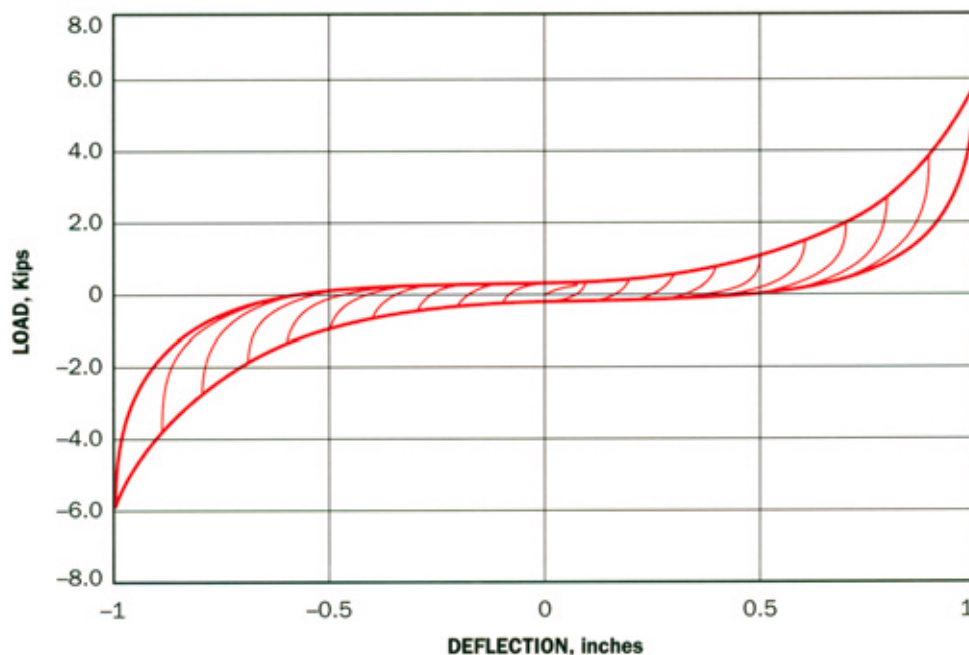
Specifications are subject to change without notice. Metric Data and/or actual curve simulations with dimensional data provided upon request. Contact your local distributor.



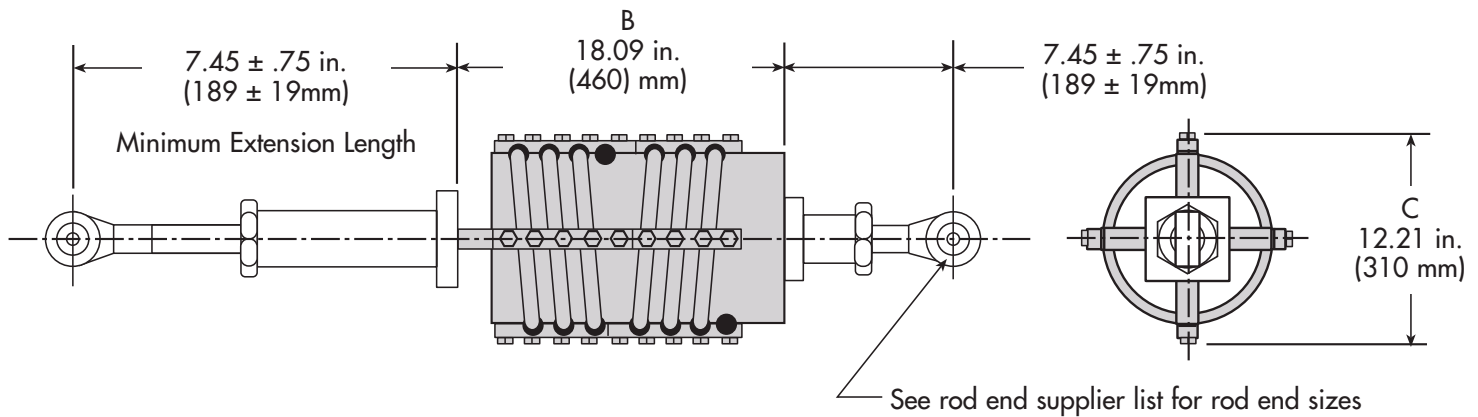
Specifications

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

Load vs. Deflection



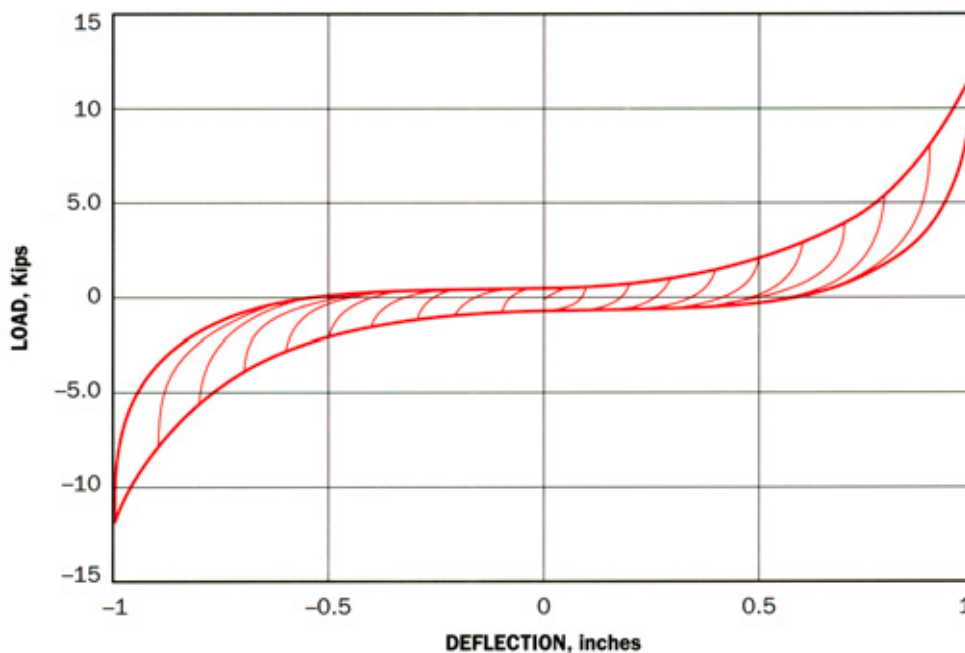
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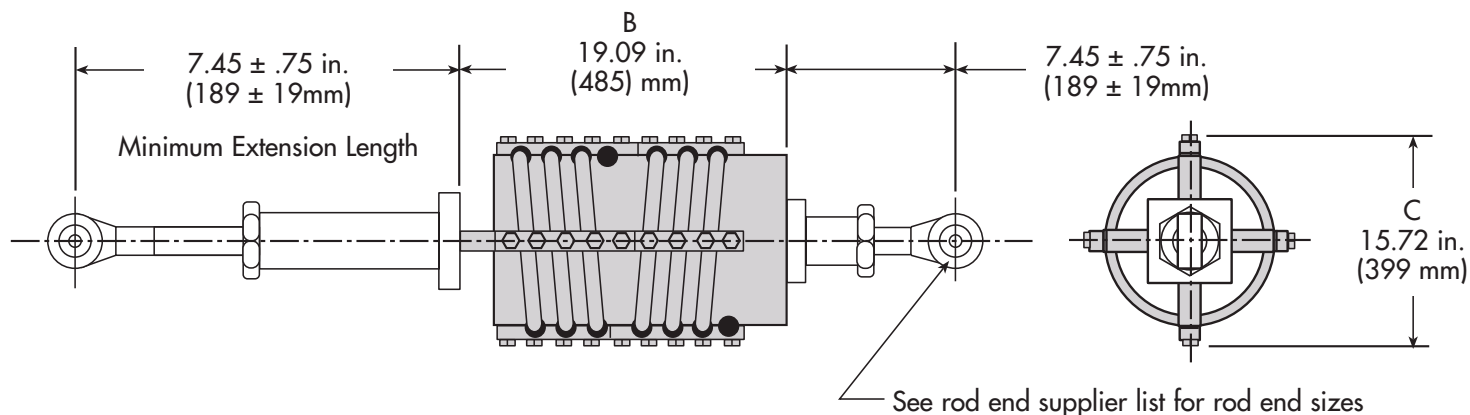
Specifications

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

Load vs. Deflection



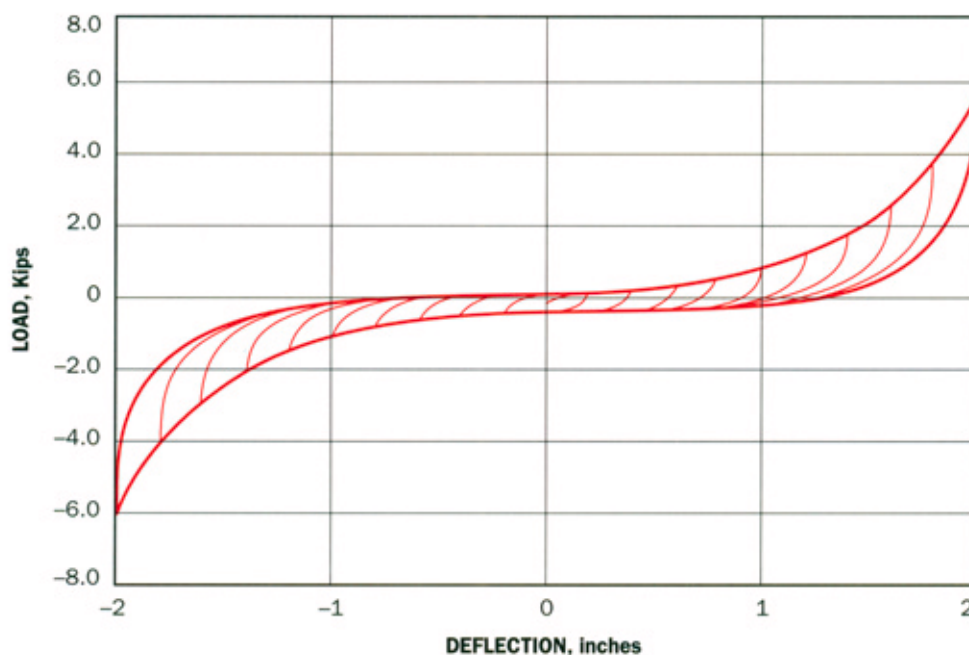
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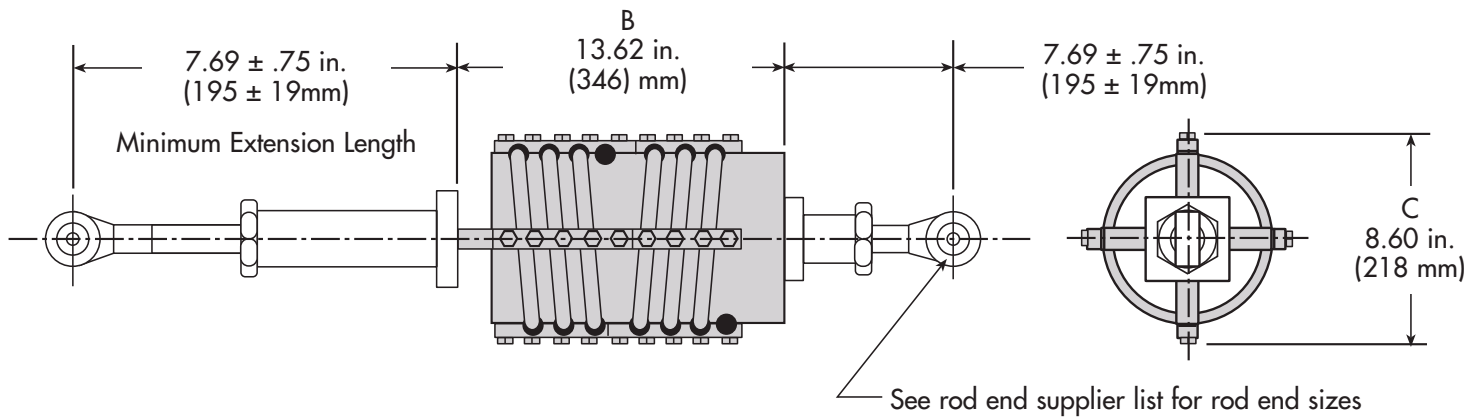
Specifications

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

Load vs. Deflection



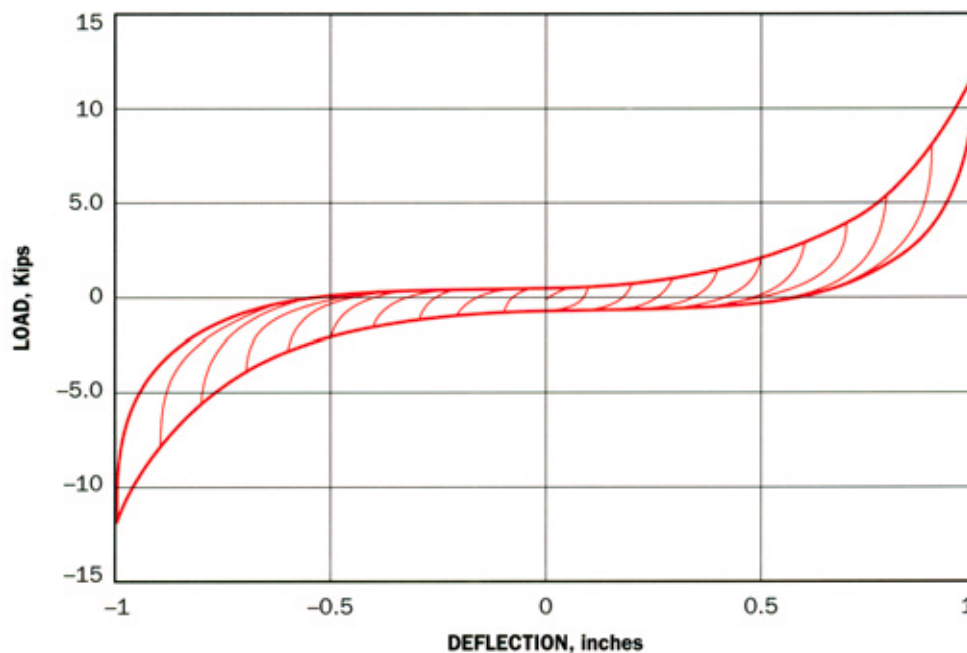
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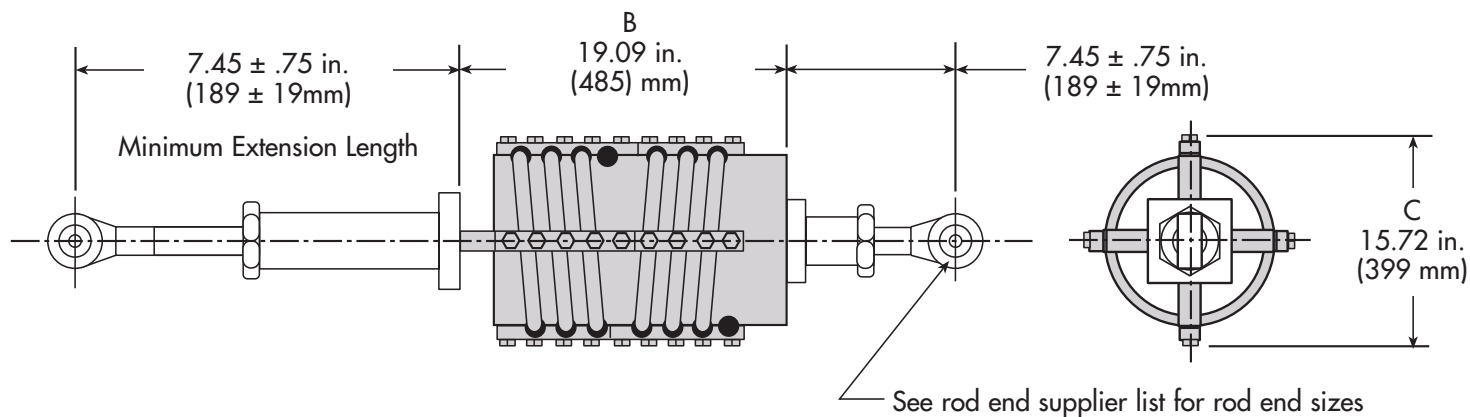
Specifications

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

Load vs. Deflection



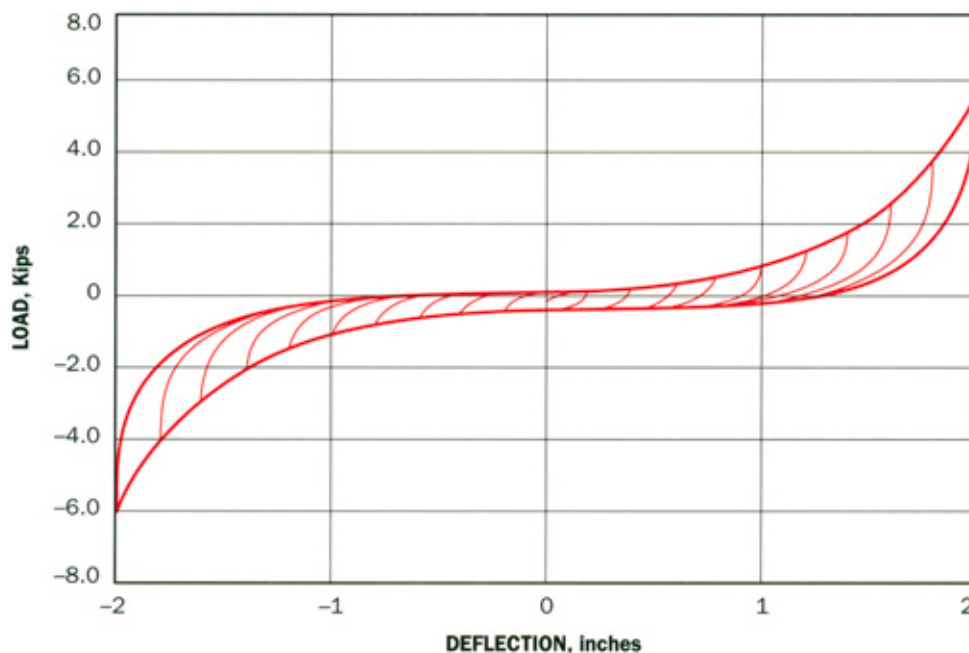
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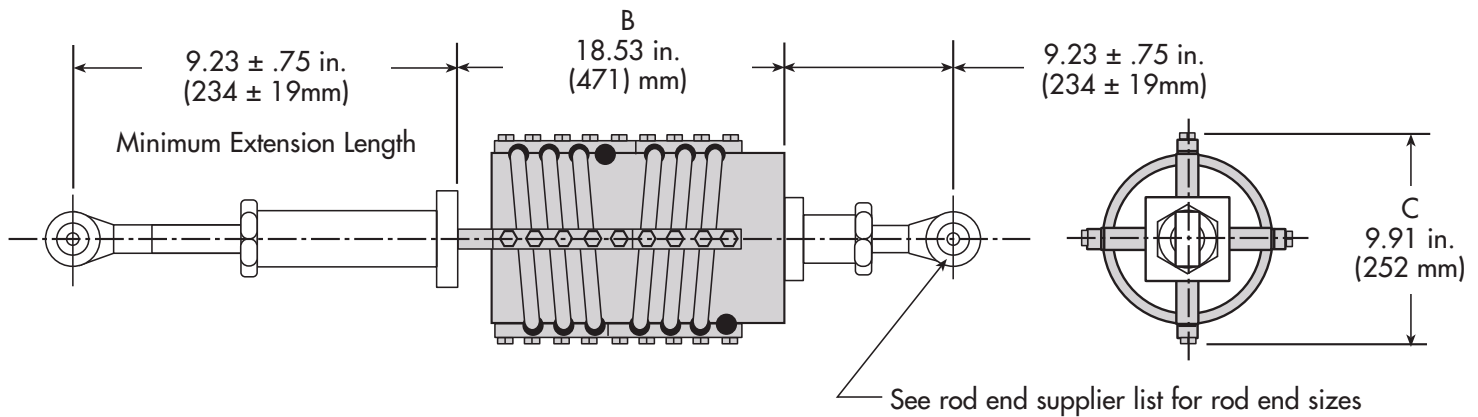
Specifications

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

Load vs. Deflection



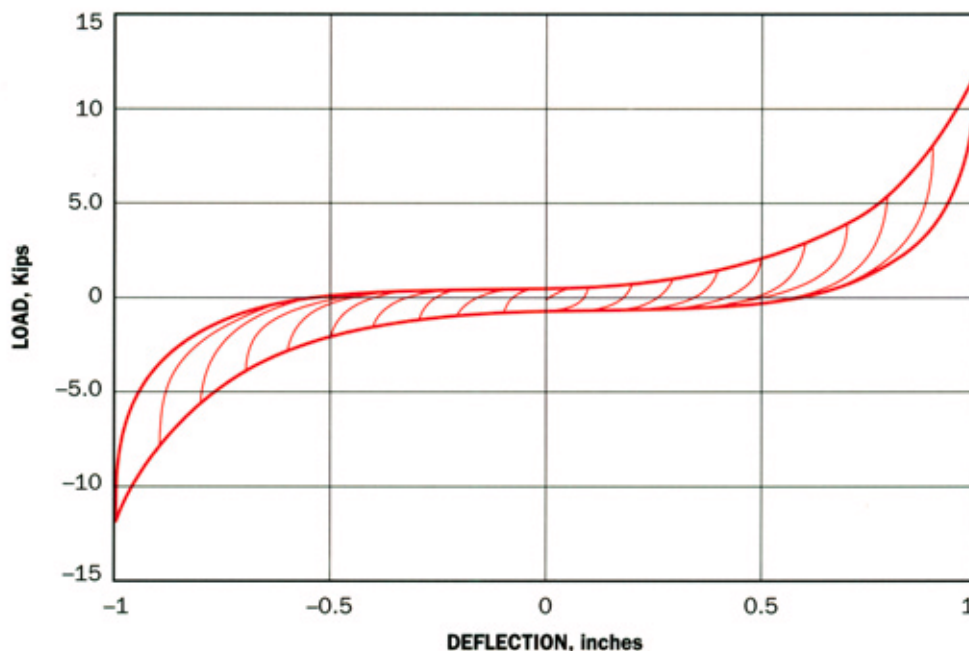
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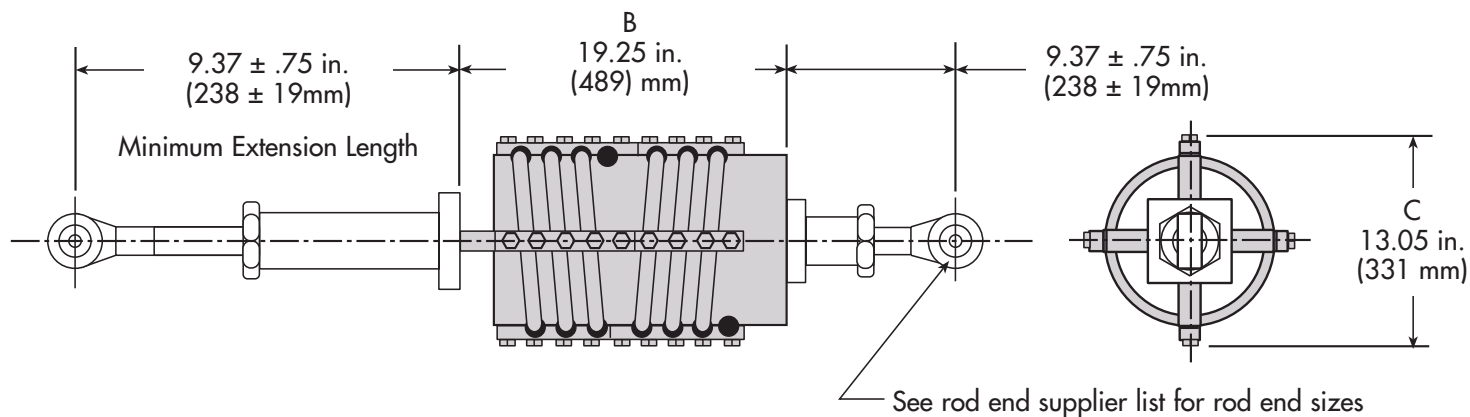
Specifications

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

Load vs. Deflection



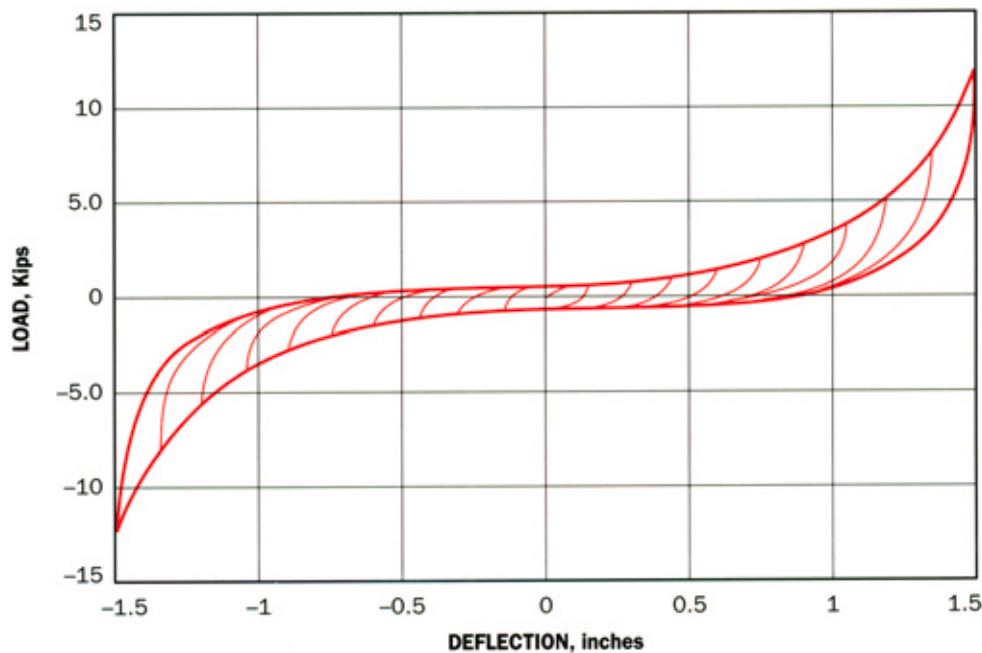
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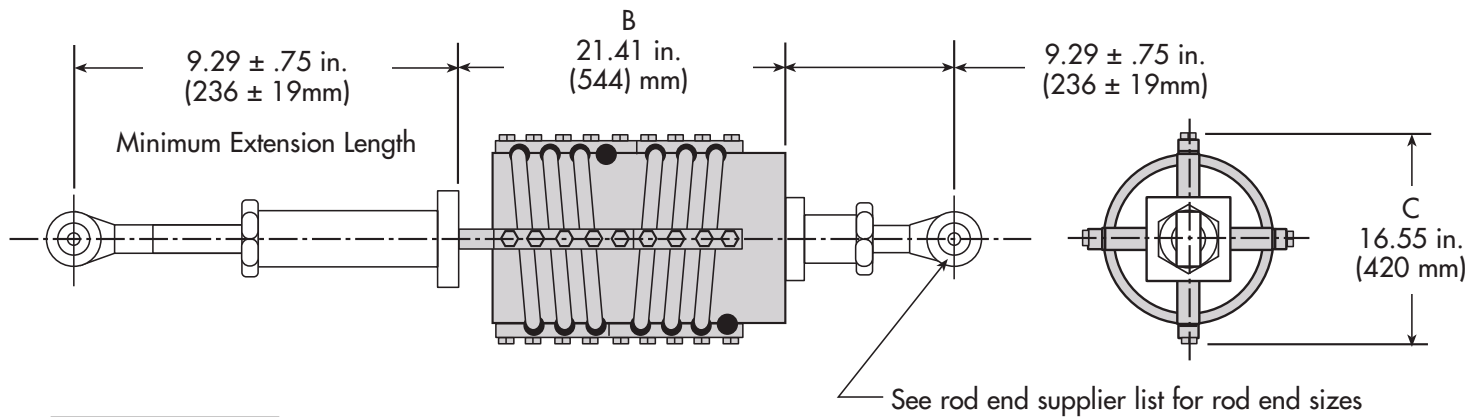
Specifications

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

Load vs. Deflection



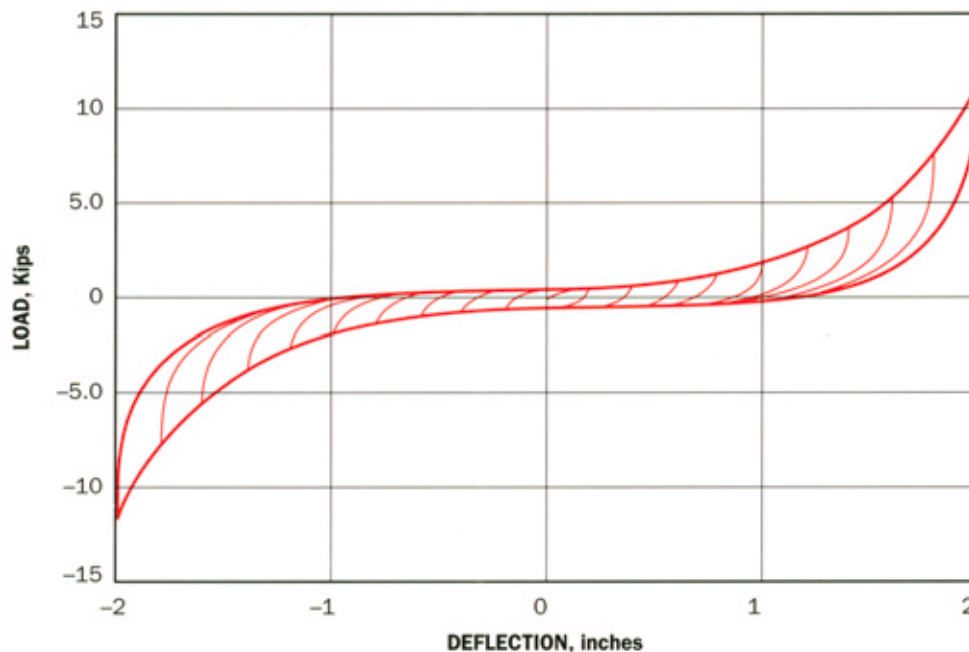
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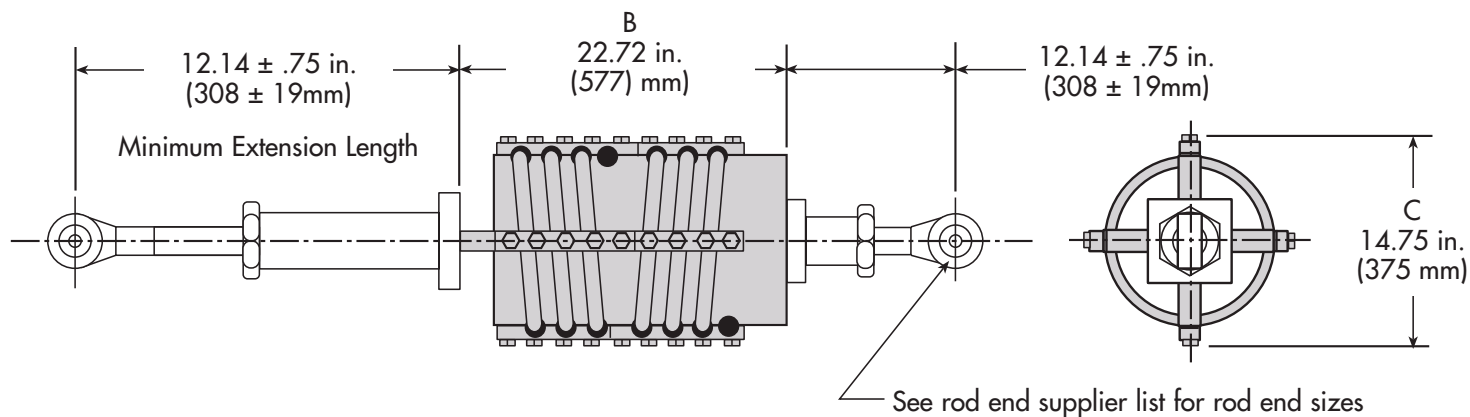
Specifications

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

Load vs. Deflection



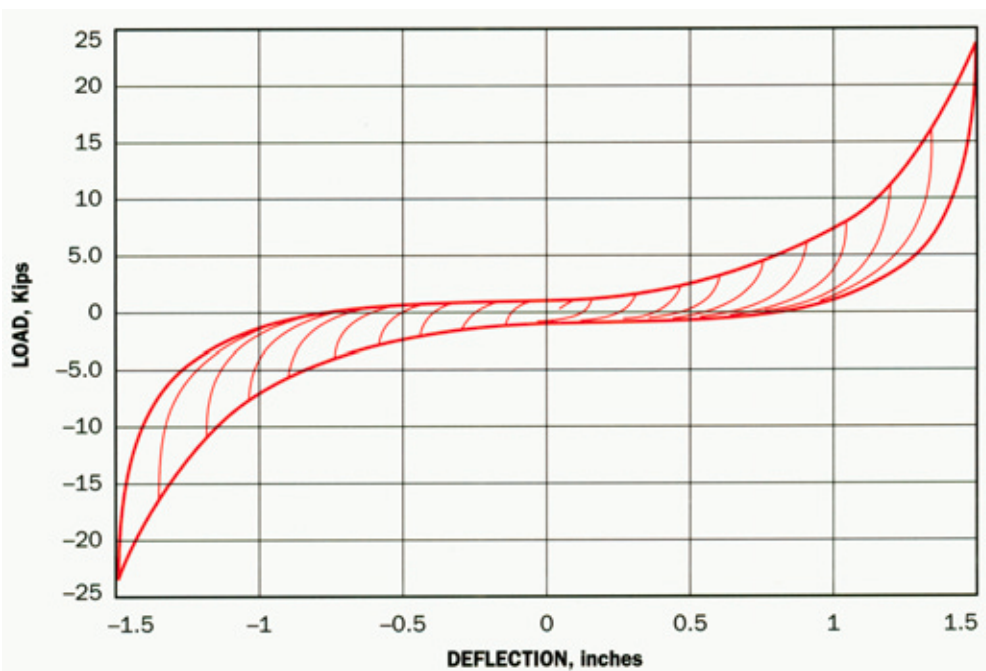
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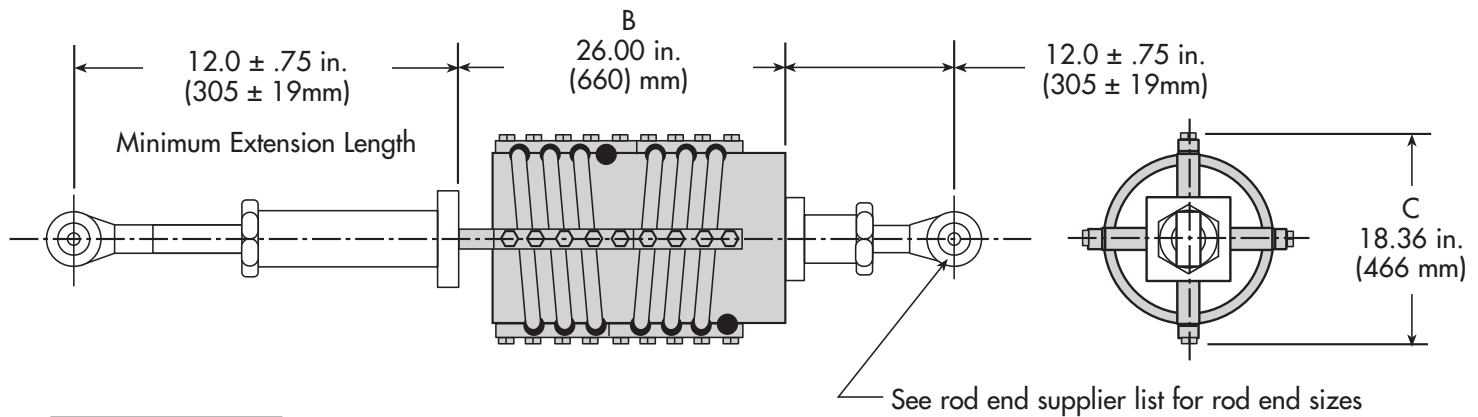
Specifications

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

Load vs. Deflection



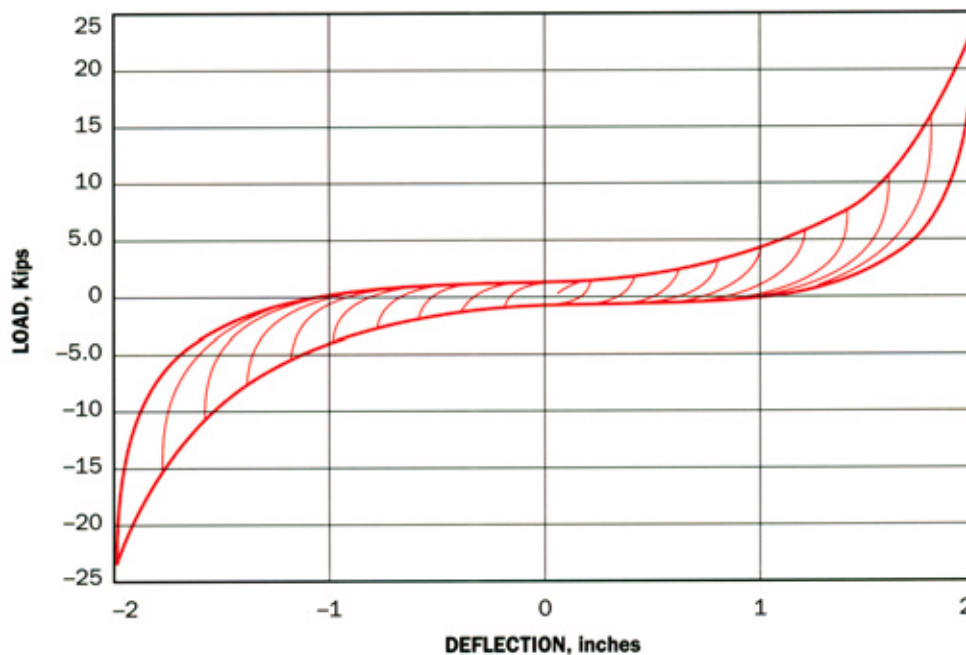
Specifications are subject to change without notice. Metric Data and/or actual curve simulations with dimensional data provided upon request. Contact your local distributor.



Specifications

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

Load vs. Deflection



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Since 1966, **ENIDINE** Incorporated has established a reputation as a leading manufacturer of energy absorption, vibration isolation and motion control solutions for the Industrial, Aerospace, Rail and Structural Control markets. Over that time, Enidine has grown significantly, established new technologies and gained worldwide recognition in various markets.

ENIDINE provides structural control technologies used to mitigate damage caused by Seismic, Blast or Vibration. Primary applications are bridges, buildings, lifeline and other high value assets. With a wide range of new technologies and high-level engineering support, our structural products can ensure that infrastructures remain safe and operational under adverse conditions.

With manufacturing facilities located throughout the United States, Germany, United Kingdom, Japan, Korea and China as well as through an extensive global distribution network, Enidine provides unparalleled customer service and engineering support to a broad customer base. For more information regarding Enidine product lines and services, visit our website at www.enidine.com.



ENIDINE PRODUCTS

Load Damping Rubber Mounts • Roller Bearings • High Energy Rope Mounts (HERM) • ISMIS
Isolator Stands • Isolator Rings • Viscous Dampers • Wire Rope Isolators