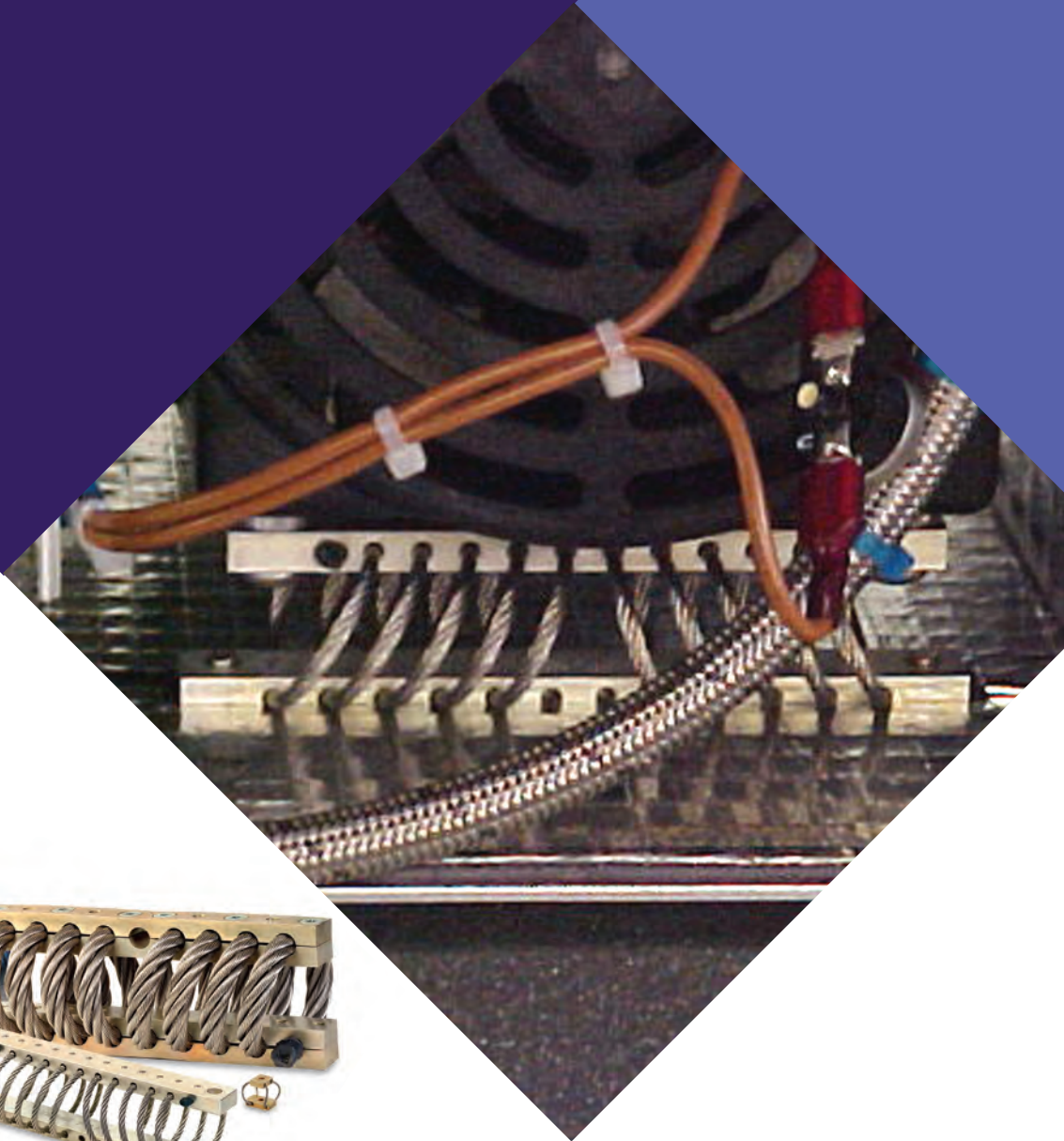


Wire Rope Isolator Technologies



ENIDINE



ITT

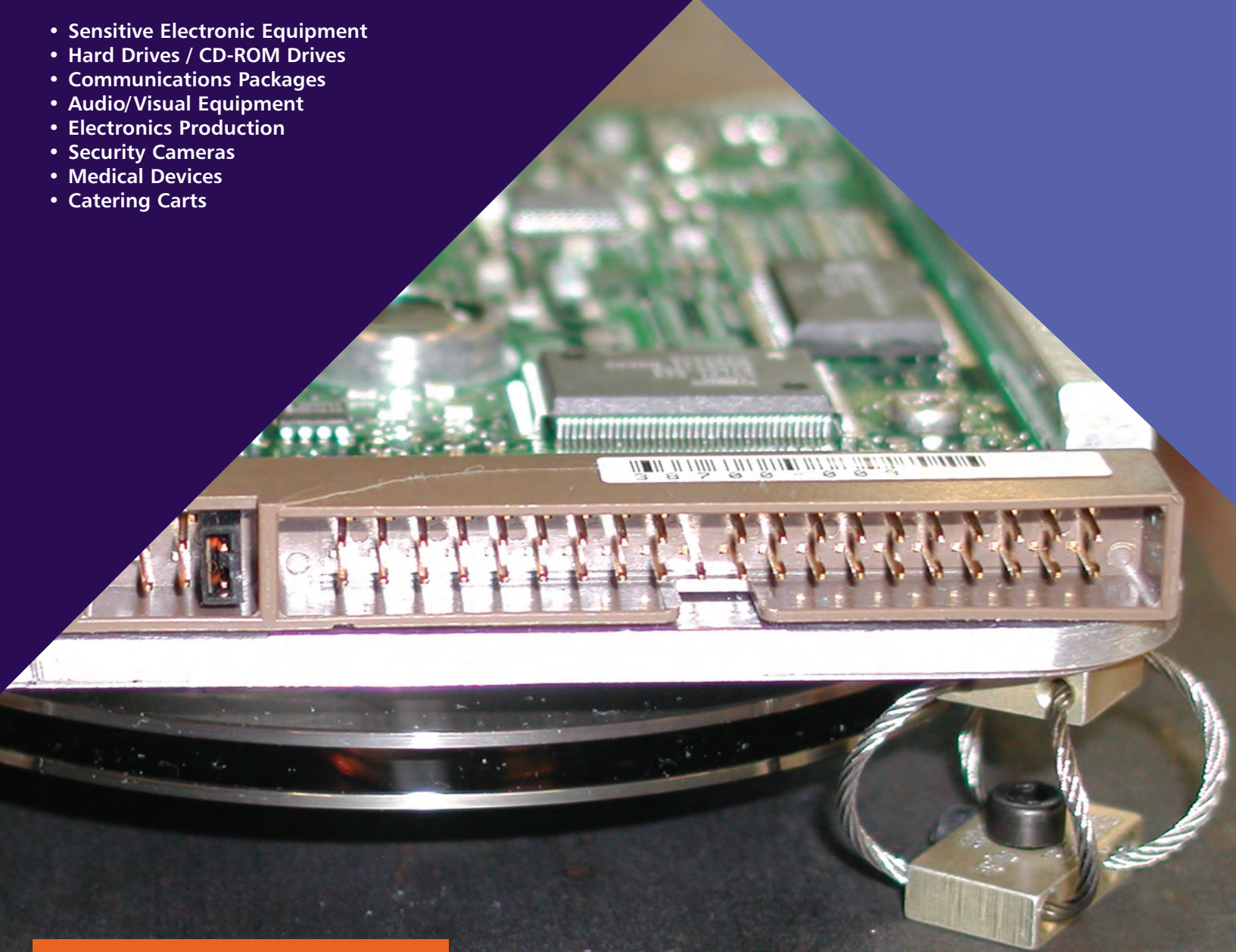
ENGINEERED FOR LIFE

WR and HERM Applications:

- Pump, Generator & Compressor Isolation
- Shipping Cases, Skids & Containers
- Chemical Processing Equipment
- Carts, Transporters & Gurneys
- Chimneys, Scrubbers & Vessels
- Power Plant Piping Suspension
- Over-the-road Transport
- Navigation Equipment
- Transportable Shelters
- Electronic Cabinets
- Seismic Isolation

CR Applications:

- Sensitive Electronic Equipment
- Hard Drives / CD-ROM Drives
- Communications Packages
- Audio/Visual Equipment
- Electronics Production
- Security Cameras
- Medical Devices
- Catering Carts



**Industry Leading
Quality and Value –
On Time Every Time**

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ITT Enidine, a preferred source for energy absorption and vibration isolation solutions, offers a full range of Wire Rope, Compact Wire Rope Isolator and HERM (High Energy Rope Mount) products, each designed to reduce the harmful effects of shock and vibration.



U.S. Patents 5,549,285
6,290,217
6,244,579

Need Assistance? ITT Enidine is ready to answer your questions, feel free to contact us at:

Phone: Toll Free - 1.800.852.8508
Direct - 1.716.662.1900

Fax: General - 1.716.662.1909
Industrial - 1.716.662.0406
Aerospace - 1.716.662.1385

Email: industrialsales@enidine.com
aviationsales@enidine.com
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Online: www.enidine.com





ITT Corporation is a diversified leading manufacturer of highly engineered critical components and customized technology solutions for growing industrial end-markets in energy infrastructure, electronics, aerospace and transportation.

Building on its heritage of innovation, ITT partners with its customers to deliver enduring solutions to the key industries that underpin our modern way of life. Founded in 1920, ITT is headquartered in White Plains, NY, with employees in more than fifteen countries and sales in more than 125 countries. The company generated proforma 2010 revenues of approximately \$2 billion. For more information, visit www.itt.com.

**At ITT our customers
are central to
everything we do.**

“ITT Enidine is widely recognized as the preferred source for energy absorption and vibration isolation products.”

From Original Equipment Manufacturers (OEM) to aftermarket applications, ITT Enidine offers a unique combination of product selection, engineering excellence and technical support to meet even the toughest energy absorption application requirements.

Global Manufacturing and Sales Facilities offer our customers:

- **Highly Trained Distribution Network**
- **State-of-the Art Engineering Capabilities**
- **Custom Solution Development**
- **Customer Service Specialists**
- **Multiple Open Communication Channels**

If you are unsure whether one of our standard products meets your requirements, feel free to speak with one of our technical representatives **toll-free at 1-800-852-8508**, or contact us via **e-mail at industrialsales@enidine.com**.

Products/Engineering/Technical Support

ITT Enidine continually strives to provide the widest selection of shock absorbers and rate control products in the global marketplace. Through constant evaluation and testing, we bring our customers innovative, differentiated products and service solutions that offer more features, greater performance and improved ease of use.

ITT Enidine engineers continue to monitor and influence trends in the motion control industry, allowing us to remain at the forefront of new energy absorption and vibration isolation product development.

Our experienced engineering team has designed custom solutions for a wide variety of challenging applications, including automated warehousing systems and shock absorbers for hostile industrial environments such as glass manufacturing, among others. These custom application solutions have proven to be critical to our customers' success. Let ITT Enidine engineers do the same for you.



Custom designs are not an exception at ITT Enidine, they are an integral part of our business. Should your requirements fit outside of our standard product range, ITT Enidine engineers can assist in developing special finishes, components, hybrid technologies and new designs to ensure a "best-fit" product solution customized to your exact specifications.

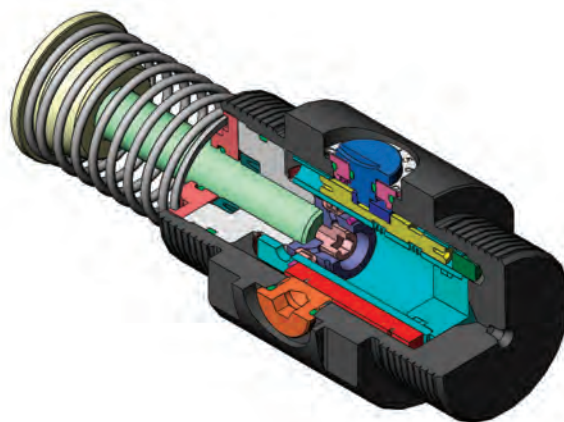
Global Service and Support

ITT Enidine offers its customers a global network of customer service staff technical sales personnel that are available to assist you with all of your application needs.

- Operating with lean manufacturing and cellular production, ITT Enidine produces higher quality custom and standard products with greater efficiency and within shorter lead times.
- An authorized Global Distribution Network is trained regularly by ITT Enidine staff on new products and services ensuring they are better able to serve you.
- Global operations in the United States, Germany, China and Japan.
- A comprehensive, website full of application information, technical data, sizing examples and information to assist in selecting the product that's right for you.

Our website also features a searchable worldwide distributor lookup to help facilitate fast, localized service. Contact us today for assistance with all of your application needs.

New Products and Services



A talented engineering staff works to design and maintain the most efficient energy absorption product lines available today, using the latest engineering tools:

- **Solid Modeling**
- **3-D CAD Drawings**
- **3-D Soluble Support Technology**
- **Finite Element Analysis**
- **Complete Product Verification Testing Facility**

New product designs get to market fast because they can be fully developed in virtual environments before a prototype is ever built. This saves time and lets us optimize the best solution using real performance criteria.



Our global customer service and technical sales departments are available to assist you find the solution that's right for your application needs. Call us at 1.800.852.8508 or e-mail us at industrialsales@enidine.com and let us get started today.

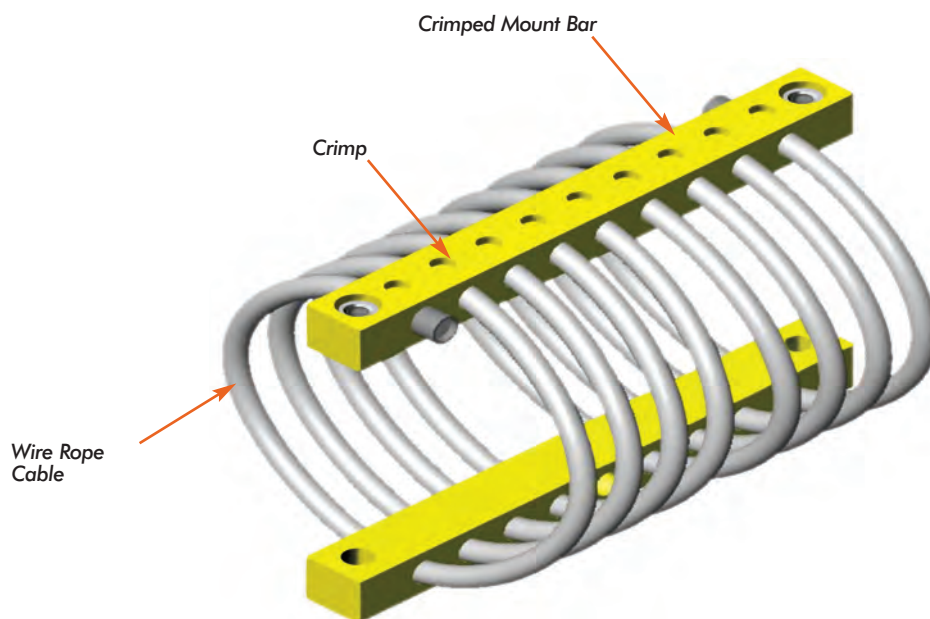


U.S. Patents 5,549,285

Wire Rope Isolators

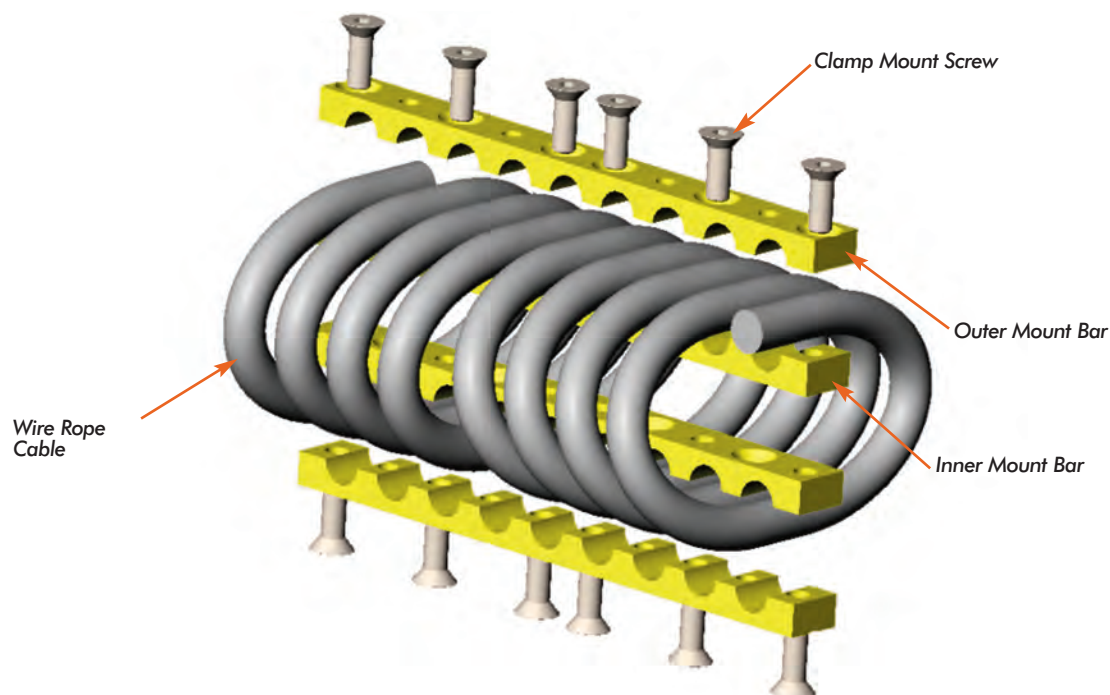
Standard Wire Rope Isolators are comprised of stainless steel stranded cable threaded through aluminum alloy retaining bars that are mounted for effective shock and vibration isolation. With their corrosion resistant, all-metal construction, ITT Enidine Wire Rope Isolators are environmentally stable, high-performance shock and vibration isolators that are unaffected by temperature extremes, chemicals, oils, ozone and abrasives.

Featuring a patented crimping pattern, versatile mounting options and a variety of sizes, these helical isolator products can help ensure that your systems can effectively meet performance requirements in Commercial, Industrial, and Defense industries, including MIL-STD-810, MIL-STD-167, MIL-S-901D, MIL-E-5400, STANAG-042, BV43-44 and DEF-STND 0755. For more information, please refer to our "Wire Rope Isolator Sizing Information" on pages 5-6 to assist you in selecting a model for your application.



Crimp Models (WR2 – WR8):

ITT Enidine's patented crimp design lowers cost by using fewer mount bars when compared to the clamp design, no assembly hardware, and reduced assembly time.



Clamp Models (WR12 – WR40):

ITT Enidine's clamp bar models are constructed by clamping the wire rope between two fastened mount bars.

Materials and Finishes:

Standard: Wire Rope: 302/304 Stainless Steel
 Mount Bars: 6061-T6 Aluminum, Chemical Conversion Coated per MIL-C-5541, Class 1A
 Hardware: Alloy Steel per ASTM F835, Zinc Plated (WR12–WR40 Series)
 Thread: Stainless Self Clinching Insert (WR2–WR8 Series), Threaded Bar (WR12–WR40 Series)

Optional: Wire Rope: Galvanized or Nylon Coated Stainless
 Mount Bars: 6061-T6 Aluminum, Anodized per MIL-A-8625, Type II, Class 1
 302/304 Stainless Steel per ASTM A276, Passivated
 Hardware: 302/304 Stainless Steel (when stainless steel bars are specified) (WR12 – WR40)
 Threads: Stainless Steel Helical Inserts, Free Running or Self Locking (WR3 – WR40)
 Threaded Aluminum (WR2 – WR8)

Special: Consult Enidine

Isolator Options:

Mounting: ITT Enidine offers a full range of mounting combinations of thru-hole, countersunk, and threaded bars. All configurations are available in either Imperial or Metric styles. Add an "M" after the mounting option for Metric. Some models have reduced mounting options available due to limited fastener installation space. Consult Enidine if a preferred mounting configuration is not listed.

Loops: ITT Enidine's wire rope isolators can be purchased with the full number of loops, or as few as 2-Loops. The number of loops is indicated in the isolator part number. Performance is provided for full loop isolators. Performance for reduced loop isolators can be obtained by a simple ratio.

Bellmouth: ITT Enidine's wire rope isolators are available with a "bellmouth" option. The bellmouth feature includes mount bars with radii manufactured into the wire rope hole edges. This option is recommended for high fatigue applications. Add an "R" to the end of the part number.

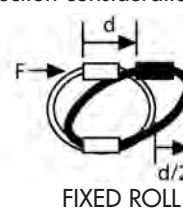
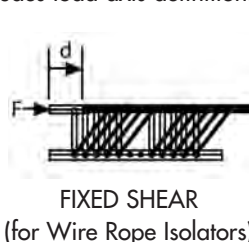
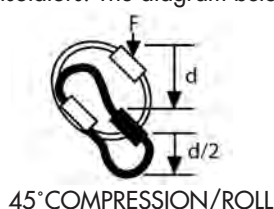
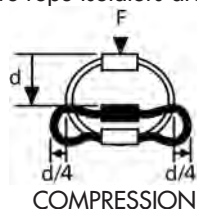
Performance:

Stiffness (K_v or K_s):

Wire rope isolators exhibit non-linear stiffness behavior. Small deflections, usually associated with vibration isolation, will have a different spring rate than larger shock deflections. ITT Enidine publishes typical vibration stiffness values (K_v), and average shock stiffness values (K_s) within the catalog. These values can be used with the provided equations listed on Page 6 to predict system performance. The stiffness values listed in the catalog are for full-loop versions. For reduced loop versions, ratio the stiffness by dividing the number of desired loops by the number of full loops.

Isolator Axes:

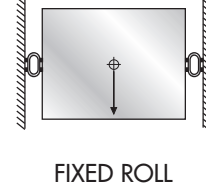
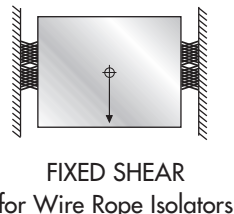
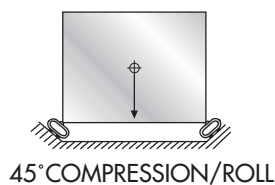
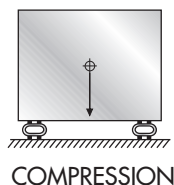
Wire rope isolators are multi-axis isolators. The diagram below includes load axis definitions and deflection considerations.



Damping: Typically 5-15%, depending on size and input level. For specific damping considerations, please consult Enidine.

Mounting Orientation:

The diagrams below illustrate typical mounting orientations.

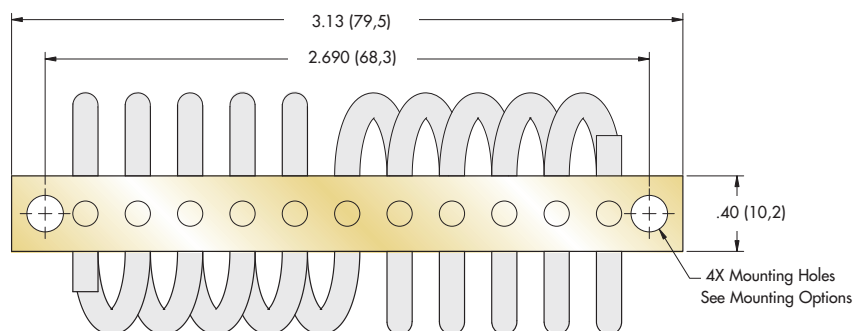


Stabilizers:

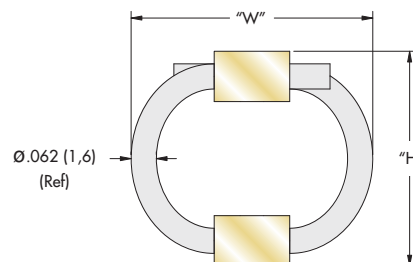
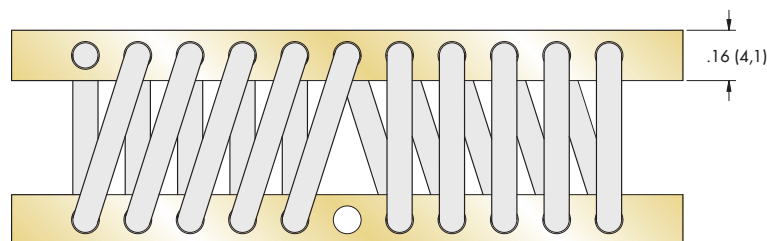
Stabilizers are used to control deflections of tall supported masses. Stabilizers are typically recommended when the height equals 2-times the width or depth dimension. In most applications, the quantity of stabilizers required are half as many as the base isolators, and selected one size softer than the base isolators.

For complete wire rope isolator product sizing please visit www.enisize.com online or feel free to use the data sheet below and send it to ITT Enidine by fax at 716.662.1909 or email to industrialsales@enidine.com.

APPLICATION WORKSHEET - INPUTS IMPERIAL/METRIC		IMPERIAL	METRIC
PART I: SYSTEM DATA: 1. Total Supported Load (W _T): $W_T = \text{_____ lbs.}$ $W_T = \text{_____ Kg} \times 9.81 = \text{_____ N}$ 2. Number of Isolators (n): $n = \text{_____}$ 3. Static Load per Isolator (W): $W = \frac{W_T}{n}$ * Assumes a central CG 4. Load Axis: Compression Shear or Roll 45° Compression/Roll		$W = \text{_____ lbs.*}$ Load Axis _____	$W = \text{_____ N*}$ Load Axis _____
PART II: VIBRATION SIZING: 1. Input Excitation Frequency $(f_i) = \text{_____ Hz} \left(= \frac{\text{rpm}}{60} \right)$ 2. System Response Natural Frequency for 80% isolation: $f_n = \frac{f_i}{3.0} = \text{_____ Hz}$ 3. Maximum Isolator Vibration Stiffness: (K _v) $K_v = \frac{W (2\pi f_n)^2}{g}$ $g = 386 \text{ in./sec}^2 \text{ or } 9.81 \text{ m/sec}^2$ 4. Select an isolator by comparing calculated values with technical data for the desired load axis provided in tables for each isolator. a.) Calculated "W" must be less than the isolator's max static load and b.) Isolator's vibration stiffness must be less than the calculated maximum K _v		$K_v = \text{_____ lbs./in.}$	$K_v = \text{_____ N/m}$
PART III: SHOCK SIZING: 1. Maximum Allowable Transmitted Acceleration: $A_T = \text{_____ G's}$ 2. Shock Input Velocity: $V = \text{_____ in./sec.}$ $V = \text{_____ m/sec.}$ Free Fall Impact: $V = \sqrt{2gh}$ $g = 386 \text{ in./sec.}^2 \text{ or } 9.81 \text{ m/sec.}^2$ $h = \text{Drop Height (in. or m)}$ 3. Min. Isolator Response Deflection: $D_{min} = \frac{V^2}{g(A_T)}$ 4. Maximum Isolator Shock Stiffness: $K_s = \frac{W(V/D_{min})^2}{g}$ 5. Select an isolator by comparing calculated values with technical data for the desired load axis provided in tables for each isolator. a.) Calculated "W" must be less than the isolator's max static load and b.) Calculated D _{min} must be less than the isolator's max deflection Note: Metric deflections are calculated in meters (m) and technical data is in millimeters (mm). and c.) Isolator's shock stiffness must be less than calculated maximum "K _s " 6. Check actual deflection using "K _s " from technical data to ensure that the isolator's max deflection is not exceeded. $D_{actual} = \frac{V}{\sqrt{\frac{K_s(\text{Isolator})}{W}}}$ 7. If isolator's max deflection is exceeded, select another isolator and repeat steps 5 and 6.		$D_{min} = \text{_____ in.}$ $K_s = \text{_____ lbs./in.}$ $D_{actual} = \text{_____ in.}$	$D_{min} = \text{_____ m}$ $K_s = \text{_____ N/m}$ $D_{actual} = \text{_____ m}$



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)



Size	Height "H" in. (mm)		Width (Ref) "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
WR2-100	0.70 (18)	± .06 (± 1,52)	1.00 (25)	0.05 (0,02)	B, D, E	Ø.185 ± .005 (Ø4,7 ± 0,13)	#8-32 UNC (M4 X 0,7)	82° (90°)
WR2-200	0.80 (20)		1.10 (28)	0.05 (0,02)	A, B, C, D, E, S			
WR2-400	1.00 (25)		1.20 (30)	0.07 (0,03)				
WR2-600	1.10 (28)		1.30 (33)	0.07 (0,03)				
WR2-700	1.20 (30)		1.40 (36)	0.07 (0,03)				
WR2-800	1.30 (33)		1.50 (38)	0.07 (0,03)				

Model Number Ordering Code

WR2 - 400 - 10 D T M

Add "M" for Metric For C'sink and Threaded Options

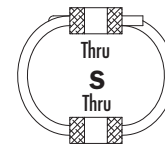
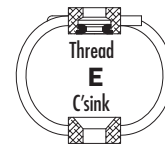
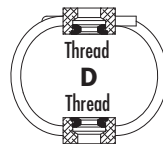
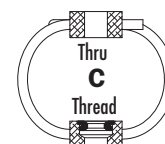
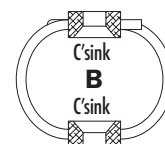
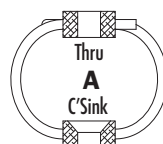
Threaded Hole Options: [] - Flush Self Clinching Threaded Insert
[T] - Tapped

Mounting Options: See Chart

Number of Loops: 10 (Reduced Number of Loops Available)

Isolator Size: See Sizing Table

Mounting Options

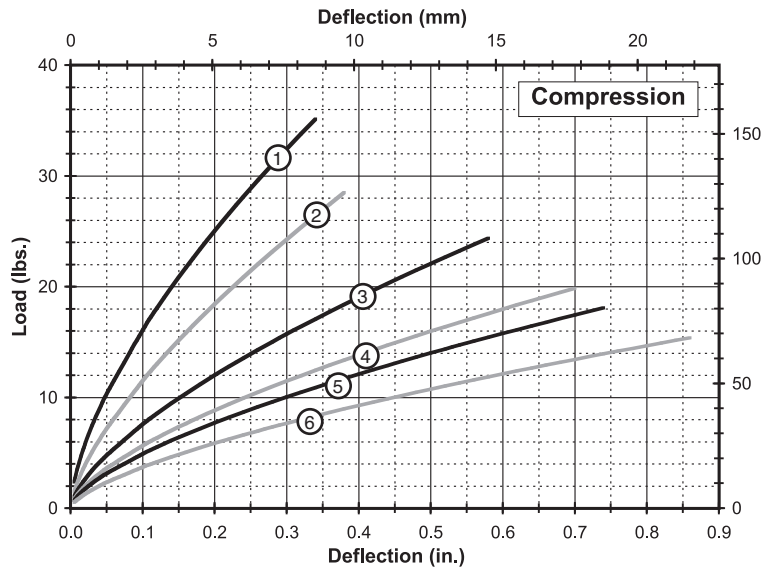


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 5.

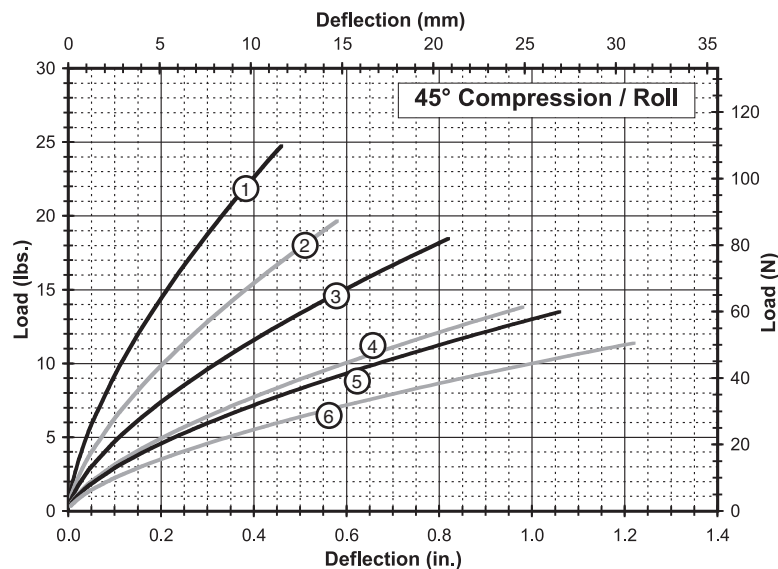
- Maximum recommended torque for standard threaded insert is 6 in.-lbs. (0,7 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)
- U.S. Patent 5,549,285

Static Load vs. Deflection



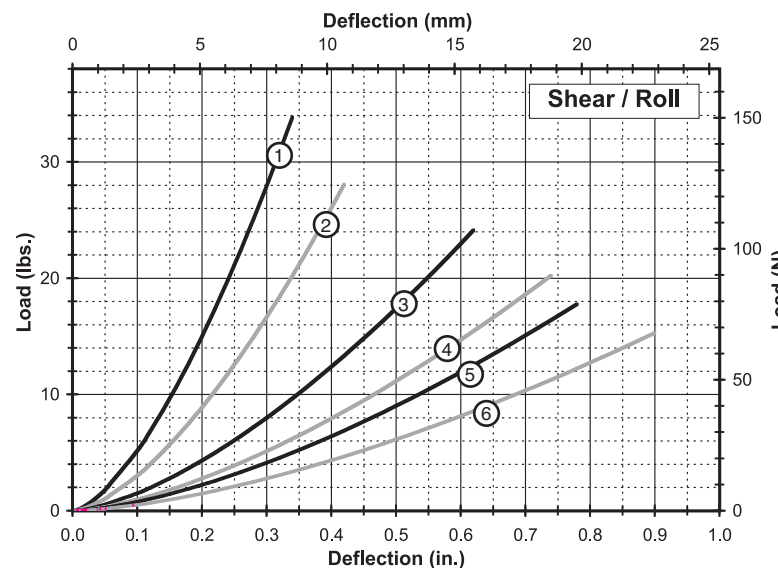
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR2-100-10	10.5 (47)	0.34 (8,6)	205 (36)	125 (22)
2	WR2-200-10	8.0 (36)	0.38 (9,7)	145 (25)	90 (16)
3	WR2-400-10	7.0 (31)	0.58 (14,7)	95 (17)	50 (8,8)
4	WR2-600-10	6.0 (27)	0.70 (17,8)	70 (12)	35 (6,1)
5	WR2-700-10	5.0 (22)	0.74 (18,8)	60 (11)	30 (5,3)
6	WR2-800-10	4.5 (20)	0.86 (21,8)	45 (7,9)	22 (3,9)



45° Compression/Roll

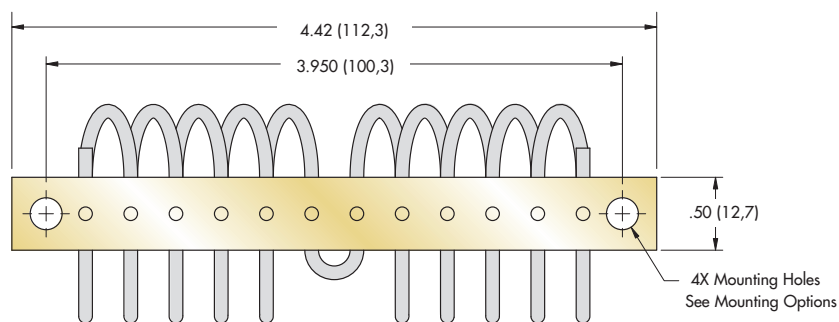
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR2-100-10	7.5 (33)	0.46 (11,7)	115 (20)	65 (11,4)
2	WR2-200-10	5.5 (24)	0.58 (14,7)	80 (14)	40 (7,0)
3	WR2-400-10	5.5 (24)	0.82 (20,8)	60 (11)	27 (4,7)
4	WR2-600-10	4.0 (18)	0.98 (24,9)	40 (7,0)	17 (3,0)
5	WR2-700-10	4.0 (18)	1.06 (26,9)	35 (6,1)	15 (2,6)
6	WR2-800-10	3.5 (16)	1.22 (31,0)	30 (5,3)	11 (1,9)



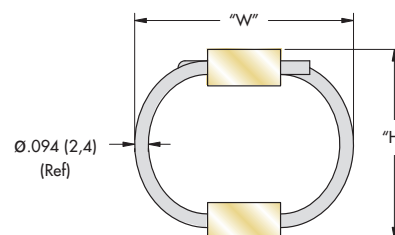
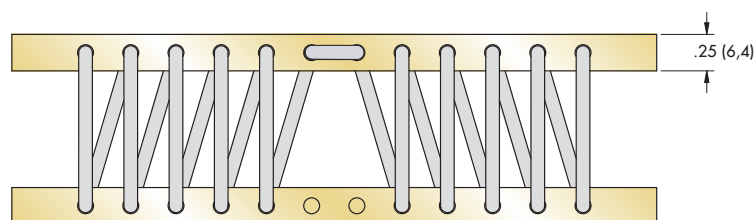
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR2-100-10	5.0 (22)	0.34 (8,6)	80 (14)	80 (14)
2	WR2-200-10	4.0 (18)	0.42 (10,7)	50 (8,8)	50 (8,8)
3	WR2-400-10	3.5 (16)	0.62 (15,7)	30 (5,3)	30 (5,3)
4	WR2-600-10	3.0 (13)	0.74 (18,8)	22 (3,9)	22 (3,9)
5	WR2-700-10	3.0 (13)	0.78 (19,8)	18 (3,2)	18 (3,2)
6	WR2-800-10	2.5 (11)	0.90 (22,9)	13 (2,3)	13 (2,3)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)

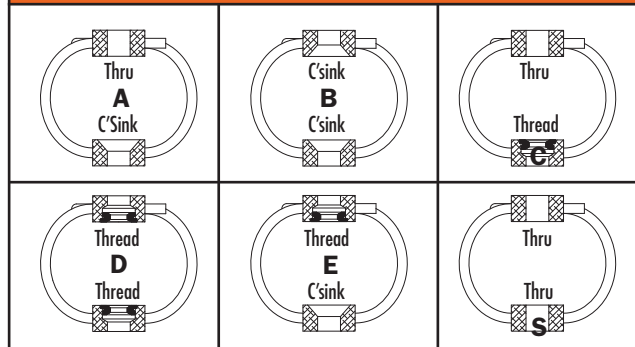


Size	Height "H" in. (mm)		Width (Ref) "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
WR3-100	0.90 (23)	± .06 (± 1,52)	1.10 (28)	0.14 (0,06)	B, D, E	Ø.219 ± .005 (Ø5,6 ± 0,13)	#10-32 UNF (M5 X 0,8)	82° (90°)
WR3-200	1.00 (25)		1.20 (30)	0.15 (0,07)	A, B, C, D, E, S			
WR3-400	1.10 (28)		1.30 (33)	0.15 (0,07)				
WR3-600	1.30 (33)		1.50 (38)	0.15 (0,07)				
WR3-700	1.40 (36)		1.60 (41)	0.16 (0,07)				
WR3-800	1.50 (38)		1.70 (43)	0.18 (0,08)				

Model Number Ordering Code

WR3 - 400 - 10 D T M	
WR3	Isolator Size: See Sizing Table
400	Number of Loops: 10 (Reduced Number of Loops Available)
10	Mounting Options: See Chart
D	Threaded Hole Options: [] - Flush Self Clinching Threaded Insert [T] - Tapped [H] - Helical Insert, Free Running [L] - Helical Insert, Self Locking
T	Add "M" for Metric For C'sink and Threaded Options
M	

Mounting Options

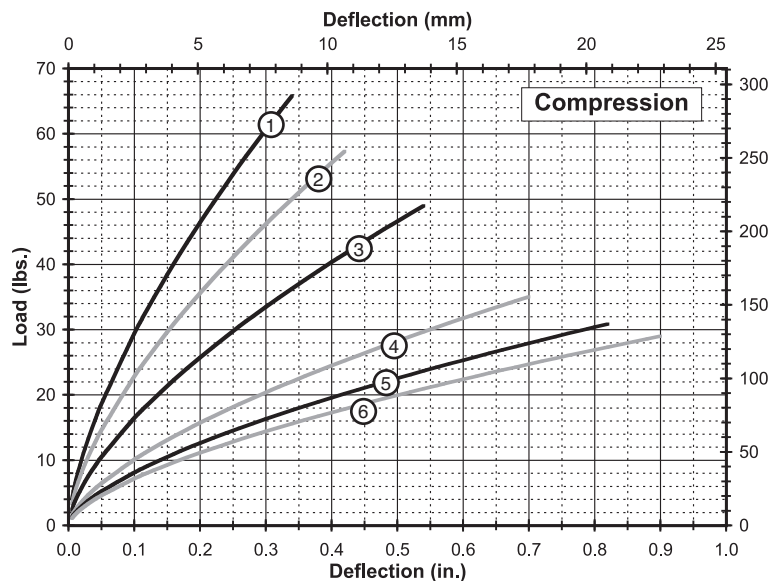


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 5.

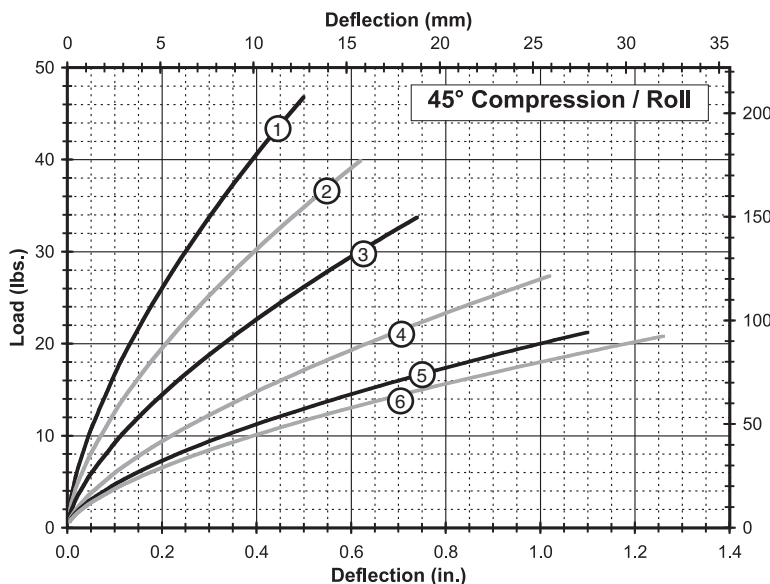
- Maximum recommended torque for standard threaded insert is 8 in.-lbs. (0,9 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)
- U.S. Patent 5,549,285

Static Load vs. Deflection



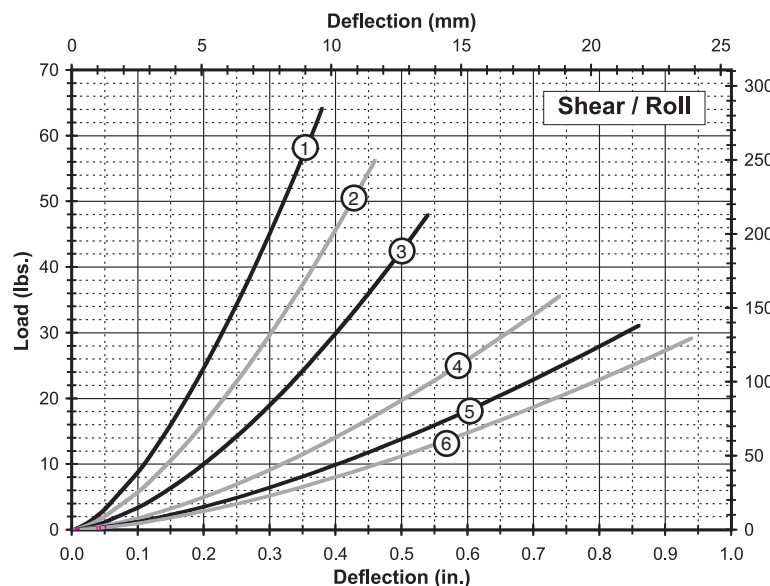
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR3-100-10	19 (85)	0.34 (8,6)	370 (65)	230 (40)
2	WR3-200-10	17 (76)	0.42 (10,7)	290 (51)	170 (30)
3	WR3-400-10	14 (62)	0.54 (13,7)	210 (37)	110 (19)
4	WR3-600-10	10 (44)	0.70 (17,8)	130 (23)	60 (11)
5	WR3-700-10	9 (40)	0.82 (20,8)	105 (18)	45 (7,9)
6	WR3-800-10	9 (40)	0.90 (22,9)	90 (16)	40 (7,0)



45° Compression/Roll

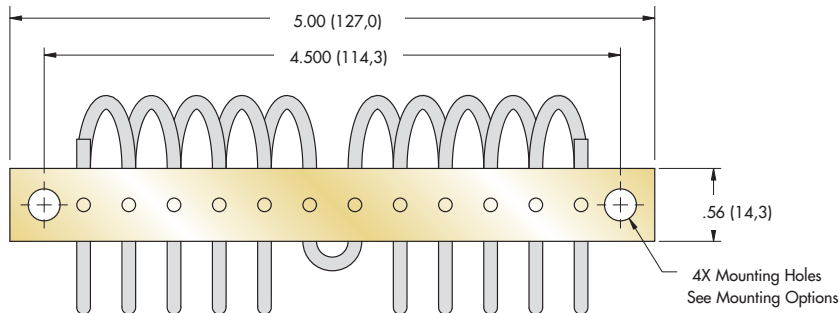
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR3-100-10	14 (62)	0.50 (12,7)	215 (38)	115 (20)
2	WR3-200-10	12 (53)	0.62 (15,7)	160 (28)	80 (14)
3	WR3-400-10	10 (44)	0.74 (18,8)	120 (21)	55 (9,6)
4	WR3-600-10	8 (36)	1.02 (25,9)	75 (13)	32 (5,6)
5	WR3-700-10	7 (31)	1.10 (27,9)	60 (11)	25 (4,4)
6	WR3-800-10	6 (27)	1.26 (32,0)	55 (9,6)	20 (3,5)



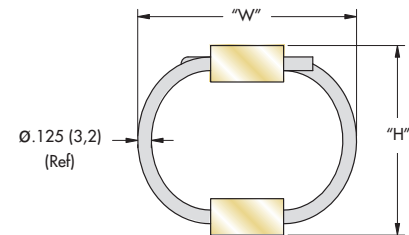
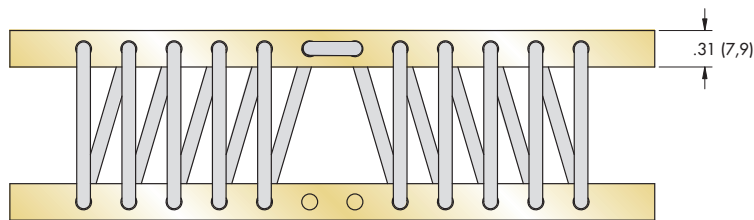
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR3-100-10	10 (44)	0.38 (9,7)	135 (24)	135 (24)
2	WR3-200-10	9 (40)	0.46 (11,7)	100 (18)	100 (18)
3	WR3-400-10	7 (31)	0.54 (13,7)	70 (12)	70 (12)
4	WR3-600-10	6 (27)	0.74 (18,8)	40 (7,0)	40 (7,0)
5	WR3-700-10	5 (22)	0.86 (21,8)	30 (5,3)	30 (5,3)
6	WR3-800-10	4 (18)	0.94 (23,9)	25 (4,4)	25 (4,4)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)



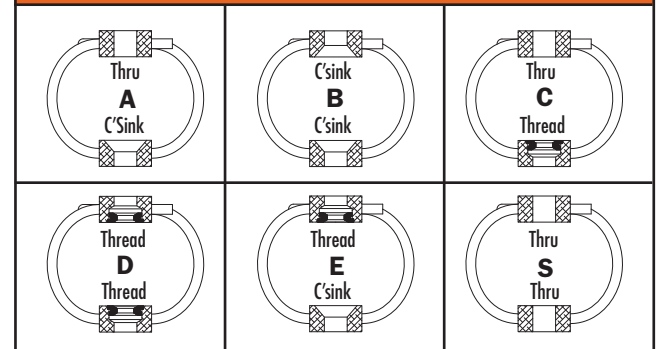
Size	Height "H" in. (mm)		Width (Ref) "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
WR4-100	1.10 (28)	± .06 (± 1,52)	1.40 (36)	0.26 (0,12)	B, D, E	Ø.272 ± .005 (Ø6,9 ± 0,13)	1/4-20 UNC (M6 X 1,0)	82° (90°)
WR4-200	1.20 (30)		1.50 (38)	0.26 (0,12)				
WR4-400	1.30 (33)		1.60 (41)	0.29 (0,13)				
WR4-500	1.40 (36)		1.70 (43)	0.29 (0,13)	A, B, C, D, E, S			
WR4-600	1.50 (38)		1.80 (46)	0.29 (0,13)				
WR4-700	1.60 (41)		1.90 (48)	0.30 (0,14)				
WR4-800	1.70 (43)		2.00 (51)	0.30 (0,14)				

Model Number Ordering Code

WR4 - 400 - 10 D T M

- WR4 - Isolator Size
- 400 - Number of Loops: 10 (Reduced Number of Loops Available)
- D - Mounting Options: See Chart
- T - Threaded Hole Options:
 - [] - Flush Self Clinching Threaded Insert
 - [T] - Tapped
 - [H] - Helical Insert, Free Running
 - [L] - Helical Insert, Self Locking
- M - Add "M" for Metric For C'sink and Threaded Options

Mounting Options

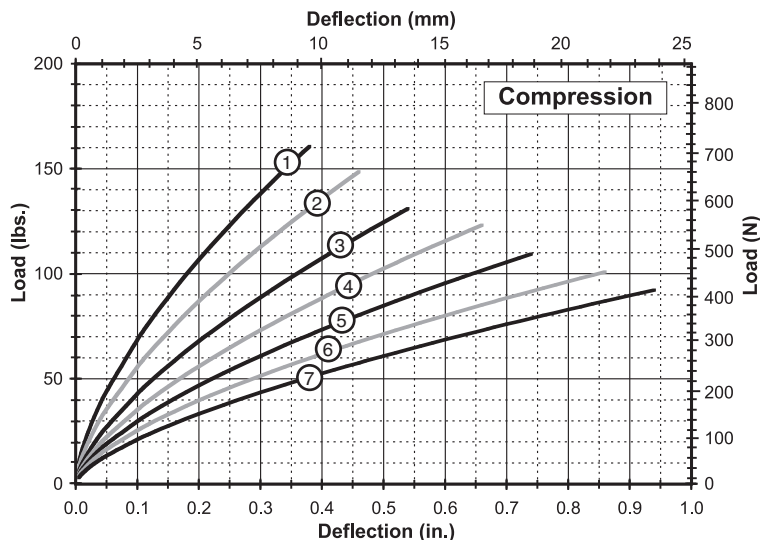


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 5.

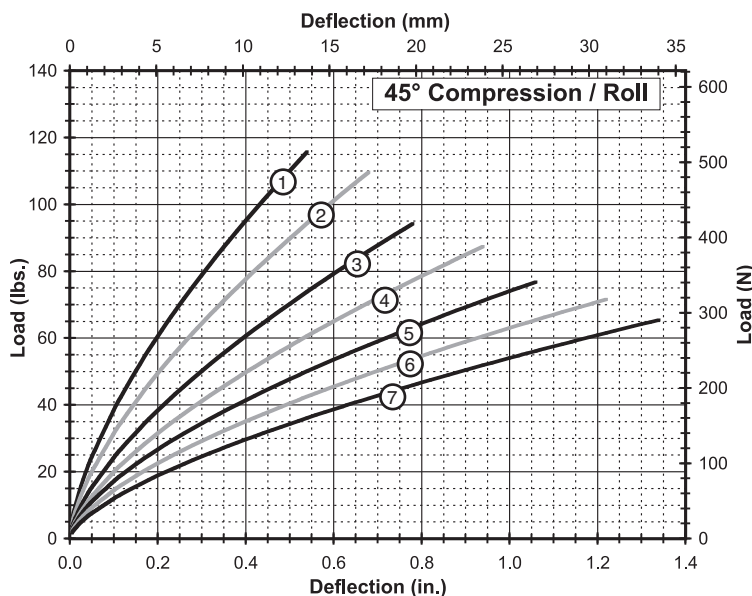
- Maximum recommended torque for standard threaded insert is 36 in.-lbs. (3,7 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)
- U.S. Patent 5,549,285

Static Load vs. Deflection



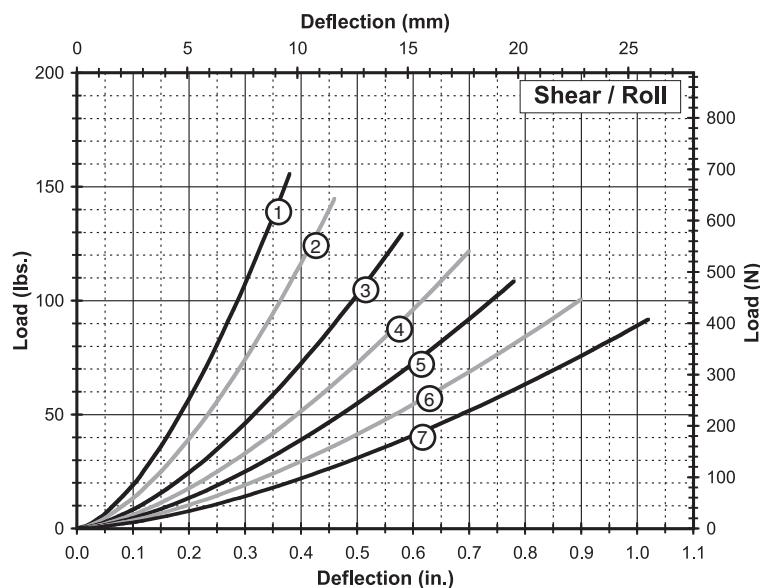
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR4-100-10	48 (213)	0.38 (9,7)	880 (154)	520 (91)
2	WR4-200-10	44 (194)	0.46 (11,7)	710 (124)	390 (68)
3	WR4-400-10	37 (166)	0.54 (13,7)	540 (95)	290 (51)
4	WR4-500-10	35 (156)	0.66 (16,8)	445 (78)	220 (39)
5	WR4-600-10	32 (142)	0.74 (18,8)	380 (67)	180 (32)
6	WR4-700-10	30 (133)	0.86 (21,8)	325 (57)	140 (25)
7	WR4-800-10	26 (117)	0.94 (23,9)	265 (46)	120 (21)



45° Compression/Roll

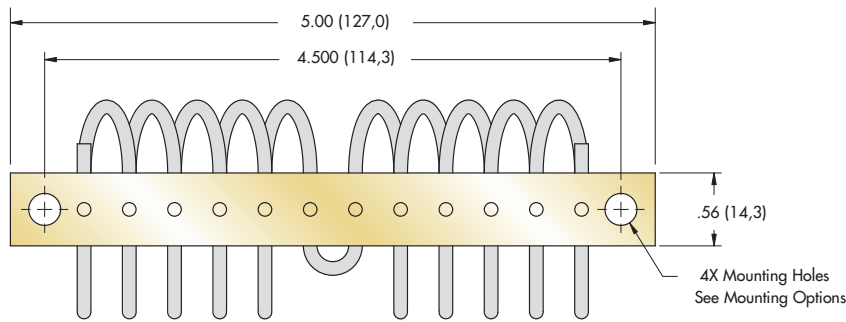
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR4-100-10	33 (149)	0.54 (13,7)	490 (86)	260 (46)
2	WR4-200-10	31 (138)	0.68 (17,3)	400 (70)	200 (35)
3	WR4-400-10	27 (118)	0.78 (19,8)	305 (53)	145 (25)
4	WR4-500-10	25 (111)	0.94 (23,9)	250 (44)	115 (20)
5	WR4-600-10	23 (102)	1.06 (26,9)	220 (39)	90 (16)
6	WR4-700-10	21 (94)	1.22 (31,0)	185 (32)	70 (12)
7	WR4-800-10	19 (84)	1.34 (34,0)	150 (26)	60 (11)



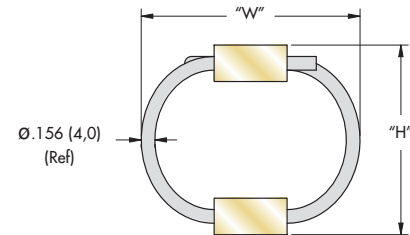
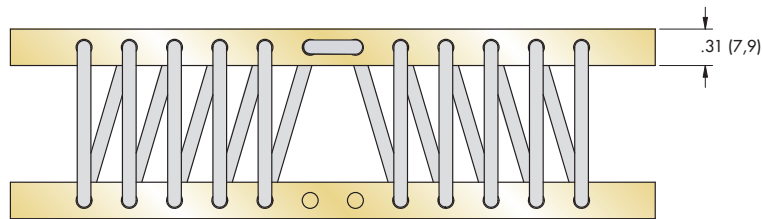
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR4-100-10	25 (111)	0.38 (9,7)	320 (56)	320 (56)
2	WR4-200-10	22 (98)	0.46 (11,7)	245 (43)	245 (43)
3	WR4-400-10	21 (93)	0.58 (14,7)	175 (31)	175 (31)
4	WR4-500-10	19 (85)	0.70 (17,8)	140 (25)	140 (25)
5	WR4-600-10	18 (80)	0.78 (19,8)	110 (19)	110 (19)
6	WR4-700-10	16 (71)	0.90 (22,9)	90 (16)	90 (16)
7	WR4-800-10	14 (62)	1.02 (25,9)	70 (12)	70 (12)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)

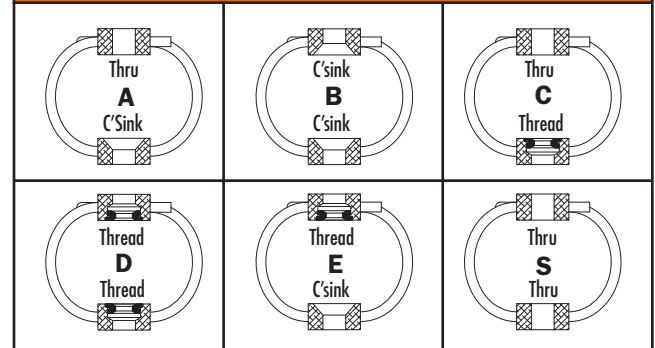


Size	Height "H" in. (mm)		Width (Ref) "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
WR5-200	1.20 (30)	± .06 (± 1,52)	1.60 (41)	0.33 (0,15)	B, D, E	Ø.272 ± .005 (Ø6,9 ± 0,13)	1/4-20 UNC (M6 X 1,0)	82° (90°)
WR5-400	1.30 (33)		1.70 (43)	0.33 (0,15)	A, B, C, D, E, S			
WR5-600	1.50 (38)		1.90 (48)	0.35 (0,16)				
WR5-800	1.80 (46)	2.10 (53)	0.38 (0,17)					
WR5-900	2.10 (53)	± .13 (± 3,30)	2.50 (64)	0.39 (0,18)				

Model Number Ordering Code

WR5 - 400 - 10 D T M	
WR5	Model
400	Size
10	Number of Loops
D	Mounting Options
T	Threaded Hole Options
M	Isolator Size
	Add "M" for Metric For C'sink and Threaded Options
	Threaded Hole Options: [] - Flush Self Clinching Threaded Insert
	[T] - Tapped
	[H] - Helical Insert, Free Running
	[L] - Helical Insert, Self Locking
	Mounting Options: See Chart
	Number of Loops: 10 (Reduced Number of Loops Available)
	Isolator Size: See Sizing Table

Mounting Options

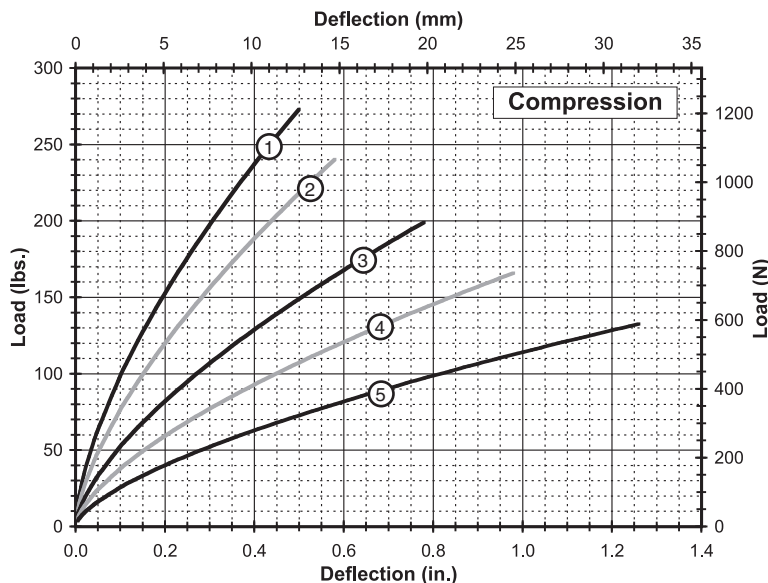


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 5.

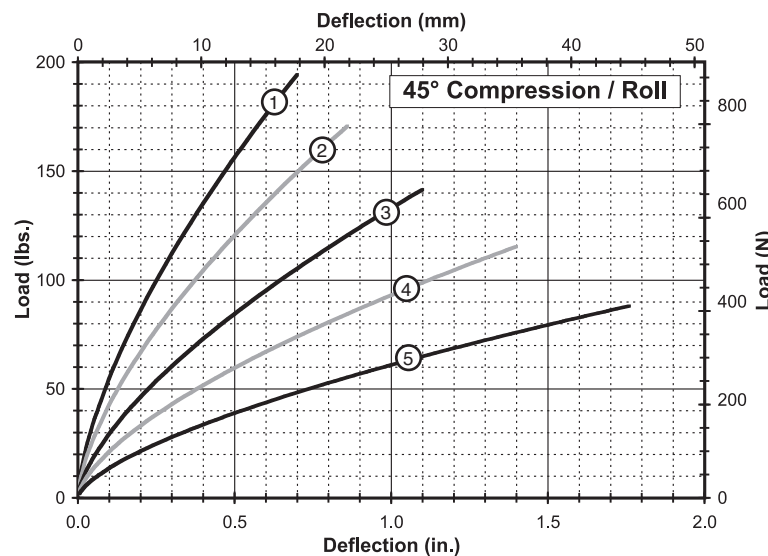
- Maximum recommended torque for standard threaded insert is 38 in.-lbs. (4,3 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)
- U.S. Patent 5,549,285

Static Load vs. Deflection



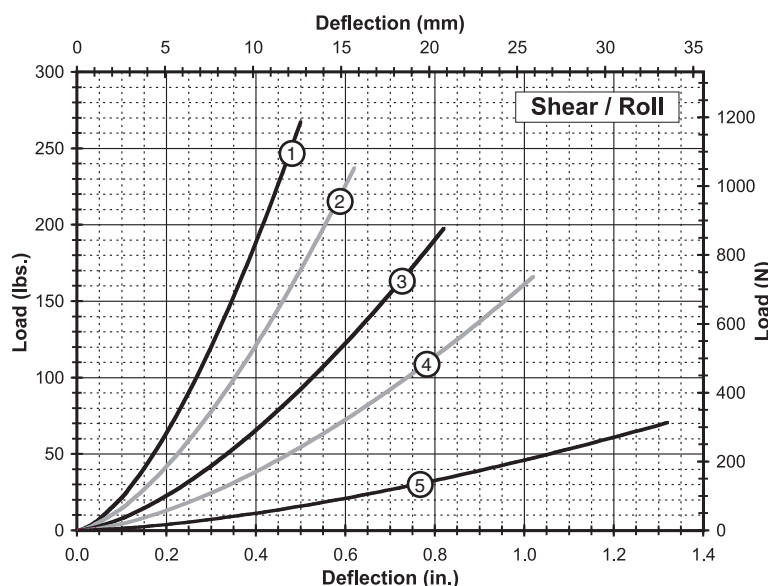
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR5-200-10	82 (364)	0.50 (12,7)	1,270 (222)	670 (117)
2	WR5-400-10	69 (309)	0.58 (14,7)	970 (170)	500 (88)
3	WR5-600-10	58 (257)	0.78 (19,8)	660 (116)	310 (54)
4	WR5-800-10	48 (216)	0.98 (24,9)	480 (84)	210 (37)
5	WR5-900-10	39 (172)	1.26 (32,0)	330 (58)	130 (23)



45° Compression/Roll

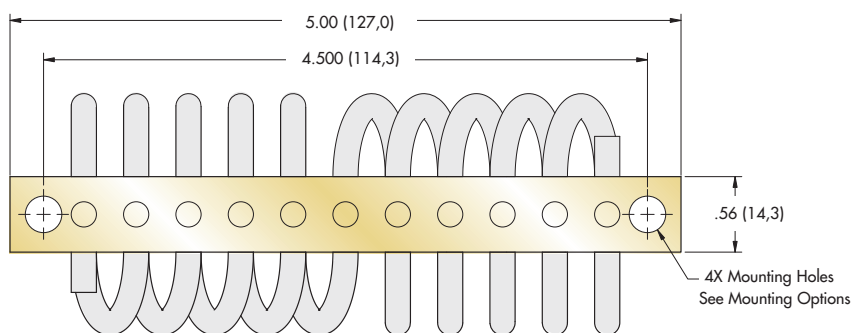
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR5-200-10	57 (254)	0.70 (17,8)	700 (123)	340 (60)
2	WR5-400-10	49 (218)	0.86 (21,8)	550 (96)	240 (42)
3	WR5-600-10	41 (182)	1.10 (27,9)	375 (66)	160 (28)
4	WR5-800-10	34 (151)	1.40 (35,6)	275 (48)	100 (18)
5	WR5-900-10	26 (115)	1.76 (44,7)	175 (31)	60 (11)



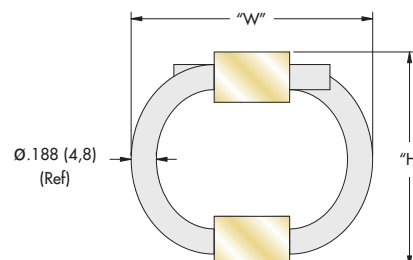
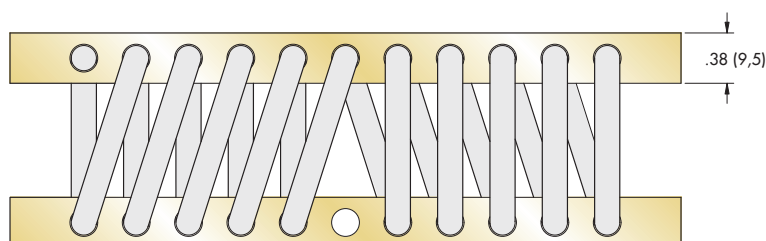
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR5-200-10	40 (178)	0.50 (12,7)	415 (73)	415 (73)
2	WR5-400-10	35 (156)	0.62 (15,7)	300 (53)	300 (53)
3	WR5-600-10	30 (133)	0.82 (20,8)	190 (33)	190 (33)
4	WR5-800-10	25 (111)	1.02 (25,9)	130 (23)	130 (23)
5	WR5-900-10	9 (40)	1.32 (33,5)	45 (7,9)	45 (7,9)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)

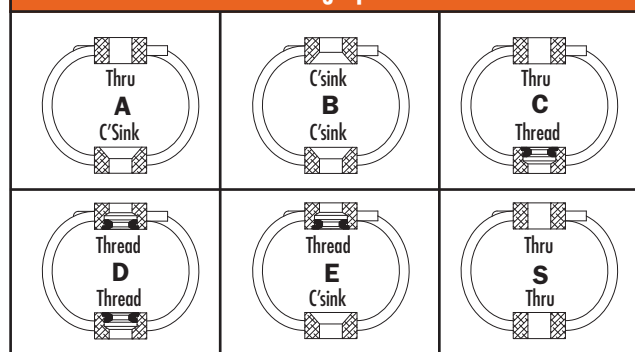


Size	Height "H" in. (mm)		Width (Ref) "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
WR6-200	1.20 (30)	± .06 (± 1,52)	1.40 (36)	0.42 (0,19)	D	Ø.272 ± .005 (Ø6,9 ± 0,13)	1/4-20 UNC (M6 X 1,0)	82° (90°)
WR6-300	1.30 (33)		1.50 (38)	0.43 (0,20)	B, D, E			
WR6-400	1.40 (36)		1.60 (41)	0.46 (0,21)				
WR6-500	1.50 (38)		1.70 (43)	0.47 (0,21)	A, B, C, D, E, S			
WR6-600	1.60 (41)		1.80 (46)	0.49 (0,22)				
WR6-700	1.70 (43)		1.90 (48)	0.54 (0,25)				
WR6-800	2.00 (51)		2.30 (58)	0.57 (0,26)				
WR6-850	2.13 (54)	2.94 (75)	0.59 (0,27)					
WR6-900	2.45 (62)	3.45 (88)	0.61 (0,28)					
WR6-950	3.20 (81)	± .13 (± 3,30)	4.20 (107)	0.63 (0,29)				

Model Number Ordering Code

WR6 - 400 - 10 D T M	
WR6	Model
400	Size
10	Number of Loops
D	Mounting Options
T	Threaded Hole Options
M	Add "M" for Metric
	For C'sink and Threaded Options
	Threaded Hole Options:
	[] - Flush Self Clinching Threaded Insert
	[T] - Tapped
	[H] - Helical Insert, Free Running
	[L] - Helical Insert, Self Locking
	Mounting Options: See Chart
	Number of Loops: 10 (Reduced Number of Loops Available)
	Isolator Size: See Sizing Table

Mounting Options

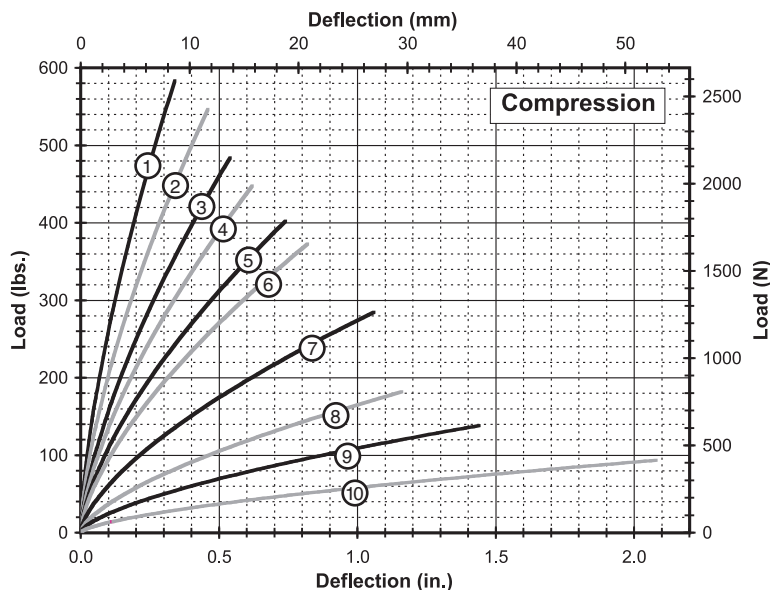


Wire Rope Special Options

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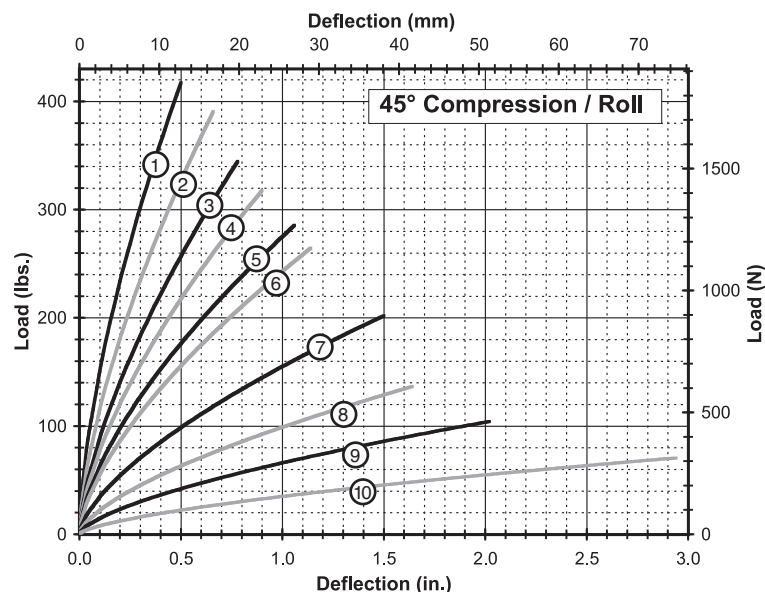
- Maximum recommended torque for standard threaded insert is 38 in.-lbs. (4,3 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)
- U.S. Patent 5,549,285

Static Load vs. Deflection



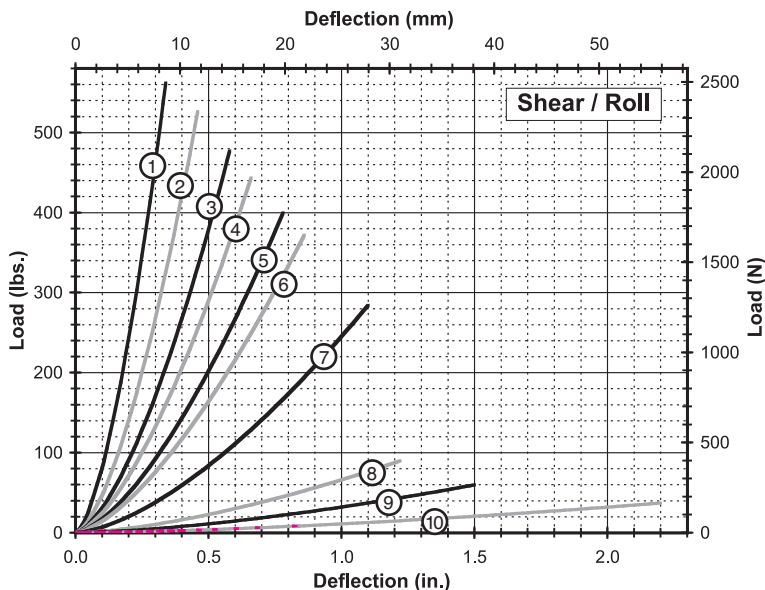
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR6-200-10	165 (734)	0.34 (8,6)	3,300 (578)	2,070 (363)
2	WR6-300-10	160 (712)	0.46 (11,7)	2,600 (455)	1,440 (252)
3	WR6-400-10	135 (601)	0.54 (13,7)	1,980 (347)	1,080 (189)
4	WR6-500-10	130 (578)	0.62 (15,7)	1,720 (301)	870 (152)
5	WR6-600-10	115 (512)	0.74 (18,8)	1,395 (244)	670 (117)
6	WR6-700-10	110 (489)	0.82 (20,8)	1,210 (212)	550 (96)
7	WR6-800-10	82 (365)	1.06 (26,9)	775 (136)	330 (58)
8	WR6-850-10	53 (236)	1.16 (29,5)	470 (82)	190 (33)
9	WR6-900-10	40 (178)	1.44 (36,6)	310 (54)	120 (21)
10	WR6-950-10	27 (120)	2.08 (52,8)	165 (29)	55 (10)



45° Compression/Roll

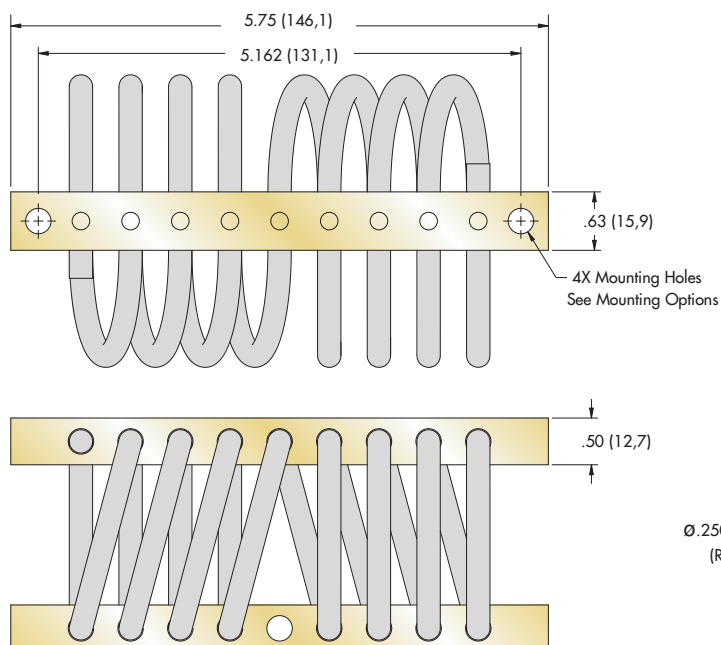
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR6-200-10	120 (534)	0.50 (12,7)	1,945 (341)	1,020 (179)
2	WR6-300-10	115 (512)	0.66 (16,8)	1,475 (258)	720 (126)
3	WR6-400-10	97 (432)	0.78 (19,8)	1,125 (197)	530 (93)
4	WR6-500-10	92 (409)	0.90 (22,9)	985 (172)	430 (75)
5	WR6-600-10	84 (373)	1.06 (26,9)	805 (141)	330 (58)
6	WR6-700-10	79 (350)	1.14 (29,0)	705 (123)	280 (49)
7	WR6-800-10	58 (260)	1.50 (38,1)	440 (77)	160 (28)
8	WR6-850-10	40 (177)	1.64 (41,7)	280 (49)	100 (18)
9	WR6-900-10	31 (136)	2.02 (51,3)	190 (33)	65 (11)
10	WR6-950-10	21 (91)	2.94 (74,7)	100 (18)	30 (5,3)



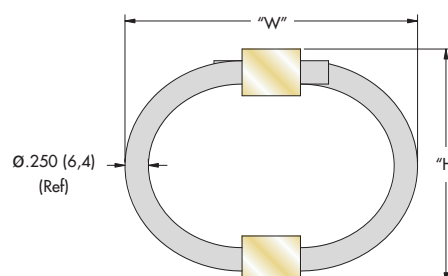
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR6-200-10	80 (356)	0.34 (8,6)	1,280 (224)	1,280 (224)
2	WR6-300-10	80 (356)	0.46 (11,7)	890 (156)	890 (156)
3	WR6-400-10	75 (334)	0.58 (14,7)	640 (112)	640 (112)
4	WR6-500-10	70 (311)	0.66 (16,8)	530 (93)	530 (93)
5	WR6-600-10	65 (289)	0.78 (19,8)	400 (70)	400 (70)
6	WR6-700-10	60 (267)	0.86 (21,8)	340 (60)	340 (60)
7	WR6-800-10	45 (200)	1.10 (27,9)	200 (35)	200 (35)
8	WR6-850-10	13 (58)	1.22 (31,0)	60 (11)	60 (11)
9	WR6-900-10	9 (40)	1.50 (38,1)	30 (5,3)	30 (5,3)
10	WR6-950-10	5 (22)	2.20 (55,9)	13 (2,3)	13 (2,3)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)

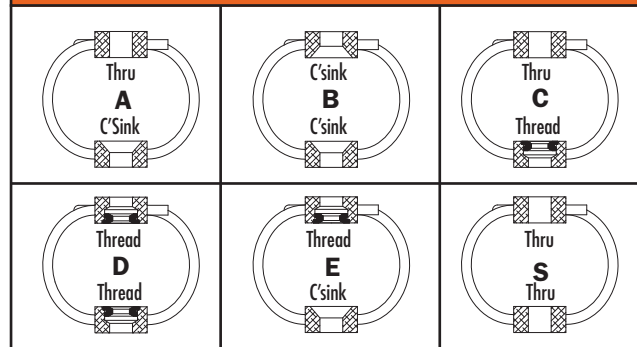


Size	Height "H" in. (mm)	Width (Ref) "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
WR8-200	1.90 (48)	$\pm .10$ ($\pm 2,54$)	2.20 (56)	A, B, C, D, E, S	$\varnothing.272 \pm .005$ ($\varnothing 6,9 \pm 0,13$)	1/4-28 UNF (M6 X 1,0)	82° (90°)
WR8-400	2.13 (54)		2.50 (64)				
WR8-500	2.31 (59)		2.80 (71)				
WR8-600	2.50 (64)		3.13 (80)				
WR8-700	2.50 (64)	$\pm .15$ ($\pm 3,81$)	3.50 (89)				
WR8-800	2.63 (67)		3.75 (95)				
WR8-850	2.63 (67)		3.95 (100)				
WR8-900	3.25 (83)		4.25 (108)				

Model Number Ordering Code

WR8 - 400 - 8 D T M	
WR8	Isolator Size: See Sizing Table
400	Number of Loops: 08 (Reduced Number of Loops Available)
8	Mounting Options: See Chart
D	Threaded Hole Options: [] - Flush Self Clinching Threaded Insert [T] - Tapped [H] - Helical Insert, Free Running [L] - Helical Insert, Self Locking
T	Add "M" for Metric For C'sink and Threaded Options
M	

Mounting Options

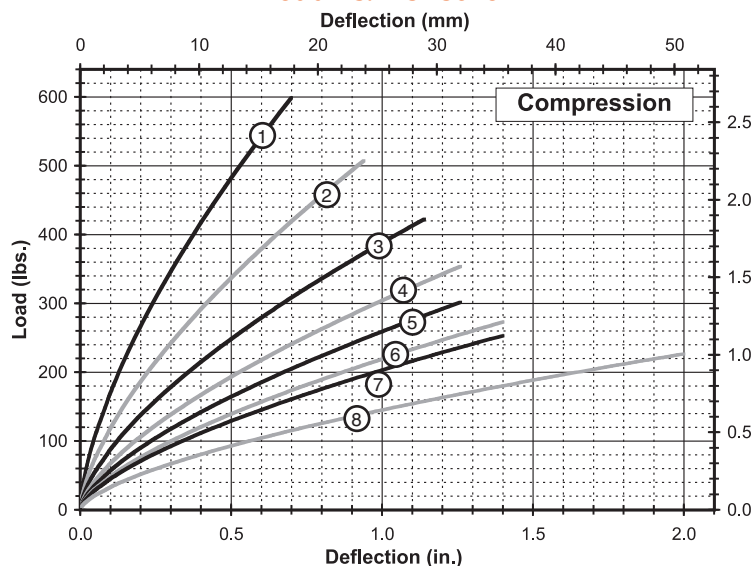


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 5.

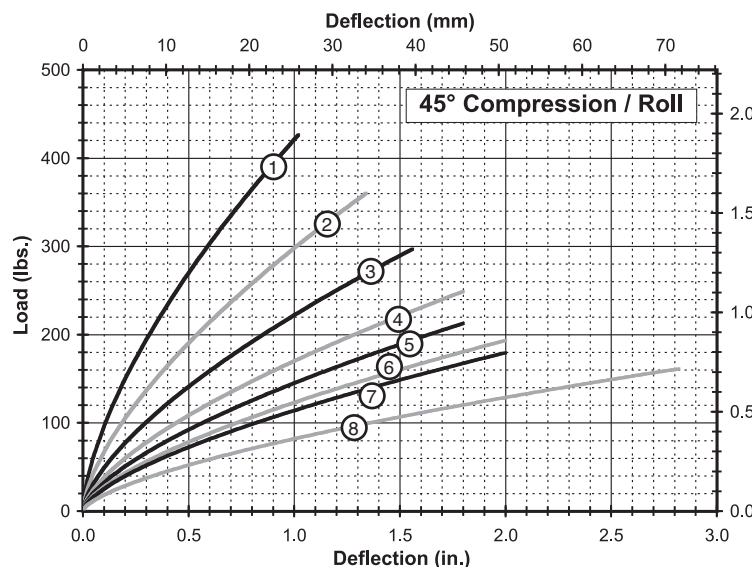
- Maximum recommended torque for standard threaded insert is 38 in.-lbs. (4,3 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)
- U.S. Patent 5,549,285

Static Load vs. Deflection



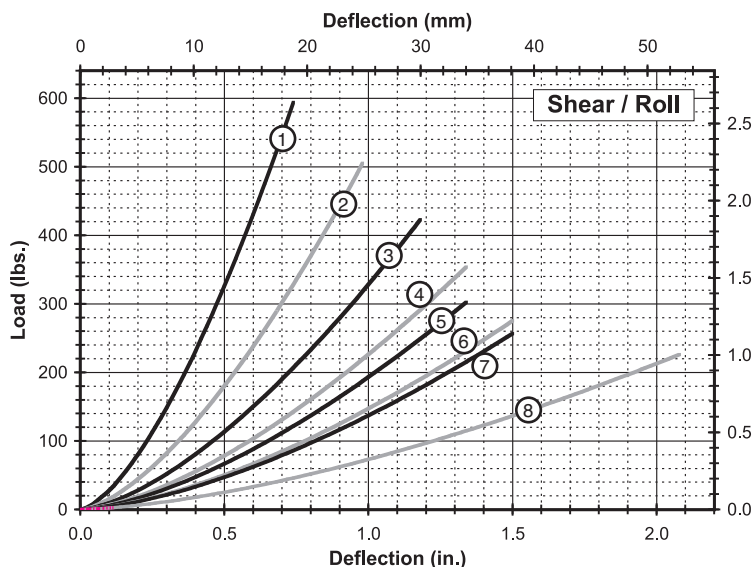
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR8-200-08	175 (778)	0.70 (17,8)	2,180 (382)	1,040 (182)
2	WR8-400-08	150 (667)	0.94 (23,9)	1,520 (266)	660 (116)
3	WR8-500-08	125 (556)	1.14 (29,0)	1,120 (196)	450 (79)
4	WR8-600-08	100 (445)	1.26 (32,0)	860 (151)	340 (60)
5	WR8-700-08	87 (386)	1.26 (32,0)	725 (127)	290 (51)
6	WR8-800-08	79 (351)	1.40 (35,6)	620 (109)	240 (42)
7	WR8-850-08	73 (325)	1.40 (35,6)	570 (100)	220 (39)
8	WR8-900-08	67 (297)	2.00 (50,8)	420 (74)	140 (25)



45° Compression/Roll

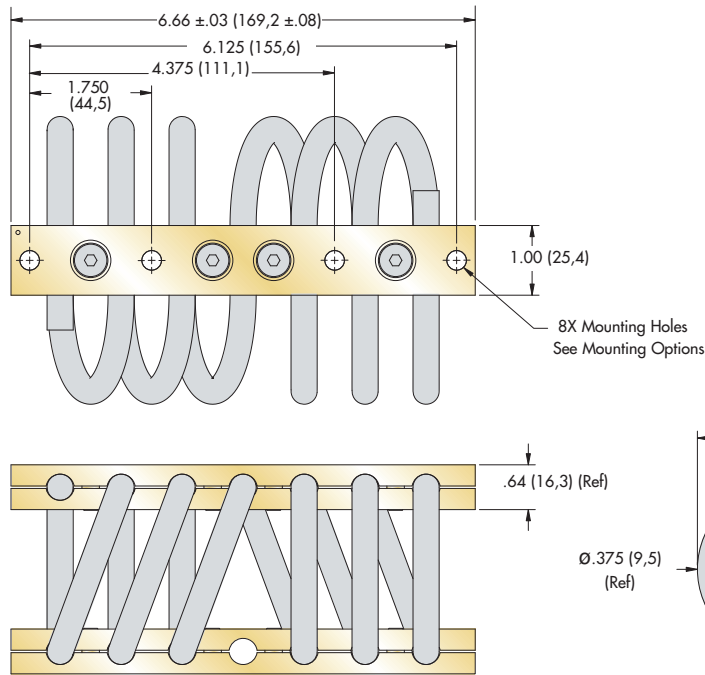
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR8-200-08	125 (556)	1.02 (25,9)	1,230 (215)	510 (89)
2	WR8-400-08	105 (467)	1.34 (34,0)	860 (151)	330 (58)
3	WR8-500-08	88 (390)	1.56 (39,6)	625 (109)	230 (40)
4	WR8-600-08	72 (321)	1.80 (45,7)	490 (86)	170 (30)
5	WR8-700-08	61 (273)	1.80 (45,7)	410 (72)	140 (25)
6	WR8-800-08	56 (248)	2.00 (50,8)	350 (61)	120 (21)
7	WR8-850-08	51 (229)	2.00 (50,8)	320 (56)	110 (19)
8	WR8-900-08	47 (209)	2.82 (71,6)	235 (41)	70 (12)



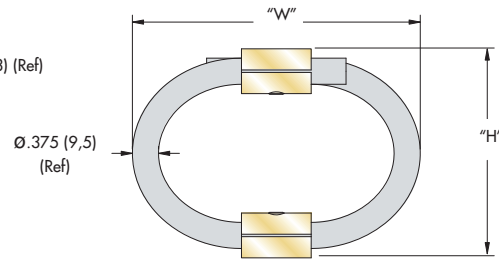
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR8-200-08	95 (423)	0.74 (18,8)	630 (110)	630 (110)
2	WR8-400-08	80 (356)	0.98 (24,9)	410 (72)	410 (72)
3	WR8-500-08	70 (311)	1.18 (30,0)	280 (49)	280 (49)
4	WR8-600-08	55 (245)	1.34 (34,0)	210 (37)	210 (37)
5	WR8-700-08	50 (222)	1.34 (34,0)	180 (32)	180 (32)
6	WR8-800-08	45 (200)	1.50 (38,1)	140 (25)	140 (25)
7	WR8-850-08	40 (178)	1.50 (38,1)	130 (23)	130 (23)
8	WR8-900-08	35 (156)	2.08 (52,8)	90 (16)	90 (16)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)



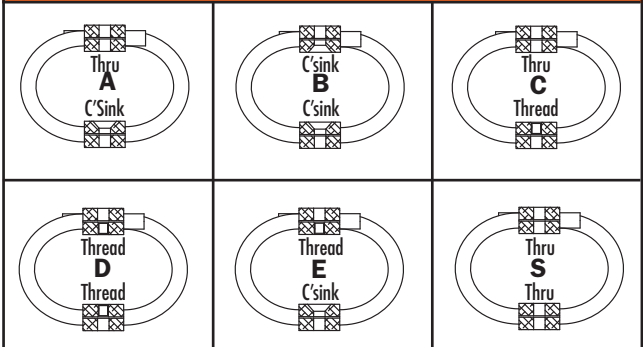
Size	Height "H" in. (mm)	Width (Ref) "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
WR12-206	2.80 (71)	3.31 (84)	1.82 (0,83)	A, B, C, D, E, S	$\varnothing.281^{+.005}_{-.015}$ $(\varnothing 7,1^{+.013}_{-.038})$	1/4-28 UNF (M6 X 1,0)	82° (90°)
WR12-306	2.90 (74)	3.50 (89)	1.88 (0,85)				
WR12-406	3.00 (76)	4.13 (105)	1.99 (0,90)				
WR12-506	3.25 (83)	4.25 (108)	2.09 (0,95)				
WR12-606	3.50 (89)	4.25 (108)	2.15 (0,98)				
WR12-706	4.13 (105)	4.75 (121)	2.36 (1,07)				
WR12-806	4.25 (108)	5.50 (140)	2.48 (1,12)				

Model Number Ordering Code

WR12-406-6 D H M

- WR12 - Isolator Size
- 406 - Number of Loops: 06 (Reduced Number of Loops Available)
- 6 - Mounting Options: See Chart
- D - Threaded Hole Options:
 - [] - Tapped
 - [H] - Helical Insert, Free Running
 - [L] - Helical Insert, Self Locking
- H - Add "H" for Metric
- M - For C'sink and Threaded Options

Mounting Options

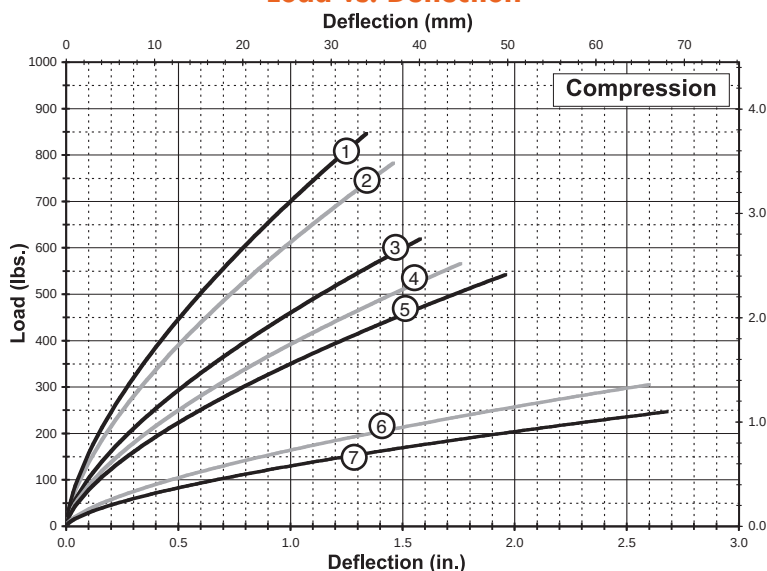


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 5.

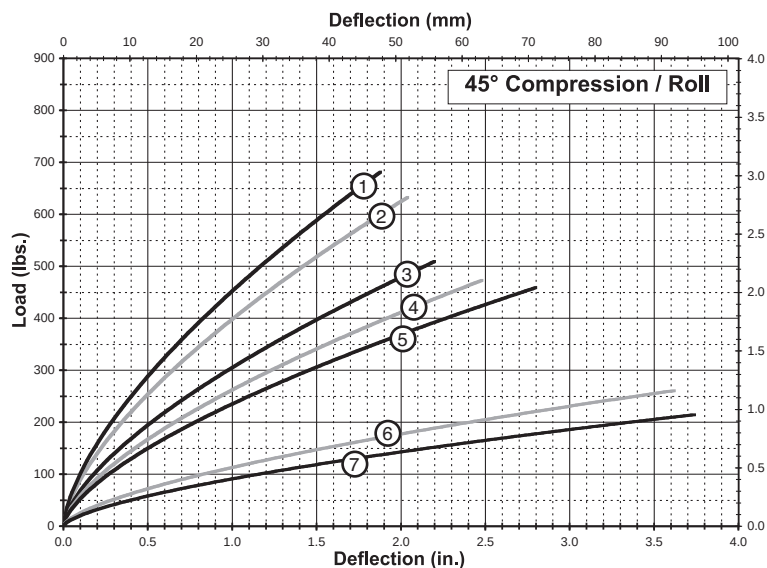
- Maximum recommended torque for threaded bar 100 in.-lbs. (10 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)

Static Load vs. Deflection



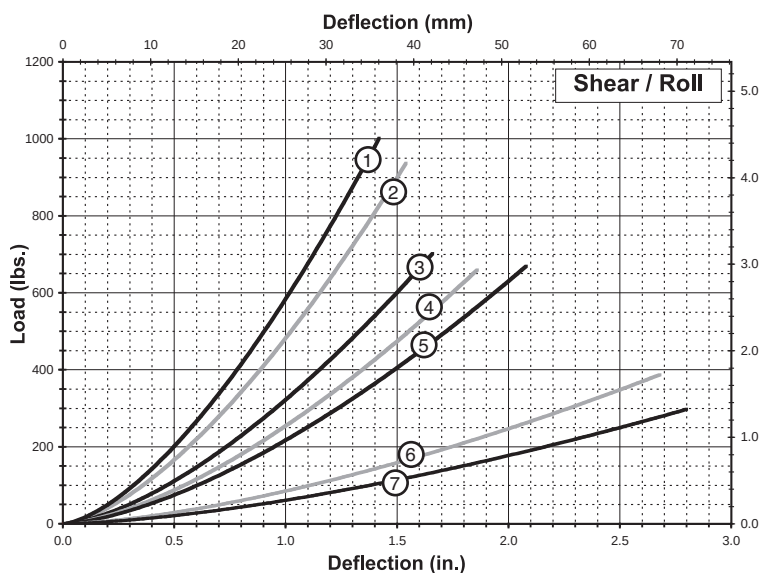
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR12-206-06	245 (1 090)	1.34 (34,0)	1,570 (275)	770 (135)
2	WR12-306-06	230 (1 023)	1.46 (37,1)	1,370 (240)	650 (114)
3	WR12-406-06	180 (801)	1.58 (40,1)	1,030 (180)	480 (84)
4	WR12-506-06	165 (734)	1.76 (44,7)	880 (154)	390 (68)
5	WR12-606-06	160 (712)	1.96 (49,8)	785 (137)	340 (60)
6	WR12-706-06	89 (396)	2.60 (66,0)	370 (65)	140 (25)
7	WR12-806-06	72 (320)	2.68 (68,1)	290 (51)	110 (19)



45° Compression/Roll

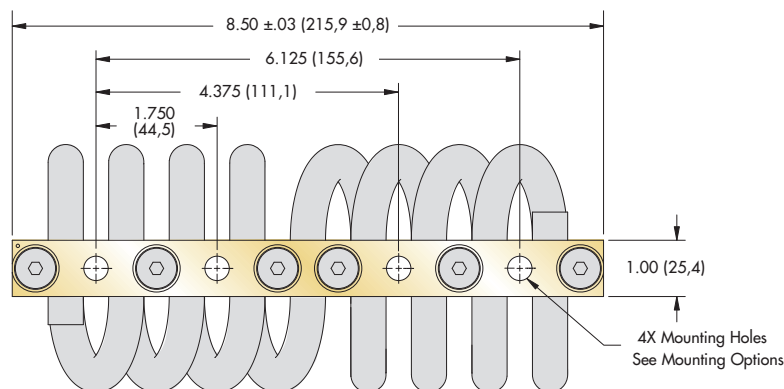
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR12-206-06	200 (890)	1.88 (47,8)	1,010 (177)	440 (77)
2	WR12-306-06	185 (823)	2.04 (51,8)	890 (156)	380 (67)
3	WR12-406-06	150 (667)	2.20 (55,9)	685 (120)	280 (49)
4	WR12-506-06	140 (623)	2.48 (63,0)	590 (103)	230 (40)
5	WR12-606-06	135 (601)	2.80 (71,1)	525 (92)	200 (35)
6	WR12-706-06	77 (341)	3.62 (91,9)	250 (44)	90 (16)
7	WR12-806-06	63 (280)	3.74 (95,0)	205 (36)	70 (12)



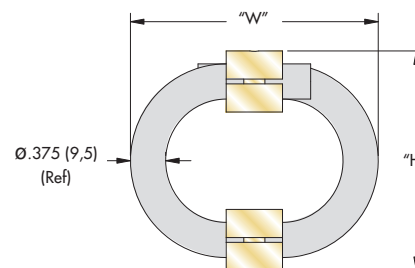
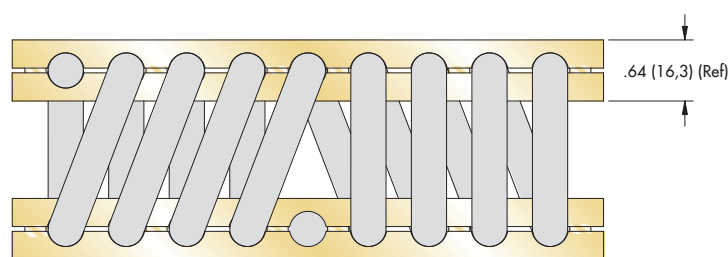
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR12-206-06	155 (689)	1.42 (36,1)	560 (98)	560 (98)
2	WR12-306-06	145 (645)	1.54 (39,1)	480 (84)	480 (84)
3	WR12-406-06	110 (489)	1.66 (42,2)	330 (58)	330 (58)
4	WR12-506-06	105 (467)	1.86 (47,2)	280 (49)	280 (49)
5	WR12-606-06	100 (445)	2.08 (52,8)	250 (44)	250 (44)
6	WR12-706-06	45 (200)	2.68 (68,1)	115 (20)	115 (20)
7	WR12-806-06	35 (156)	2.80 (71,1)	85 (15)	85 (15)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)



Size	Height "H" in. (mm)	Width (Ref) "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
WR12-200	2.80 (71)	3.31 (84)	2.43 (1,10)	A, B, C, D, E, S	$\begin{matrix} \text{Ø.281} + .005 \\ - .015 \\ (\text{Ø}9.0 + 0.13) \\ - 0.38 \end{matrix}$	1/4-28 UNF *(M8 X 1,25)	82° (90°)
WR12-300	2.90 (74)	3.50 (89)	2.50 (1,13)				
WR12-400	3.00 (76)	4.13 (105)	2.65 (1,20)				
WR12-500	3.25 (83)	4.25 (108)	2.78 (1,26)				
WR12-600	3.50 (89)	4.25 (108)	2.87 (1,30)				
WR12-700	4.13 (105)	4.75 (121)	3.15 (1,43)				
WR12-800	4.25 (108)	5.50 (140)	3.31 (1,50)				

* Tapped M8 x 1.25, Inserts M6 x 1.0

Model Number Ordering Code

WR12-400-8 D H M

- WR12 - Wire Rope Isolator Series
- 400 - Isolator Size
- 8 - Number of Loops
- D - Mounting Options
- H - Threaded Hole Options
- M - Add "M" for Metric

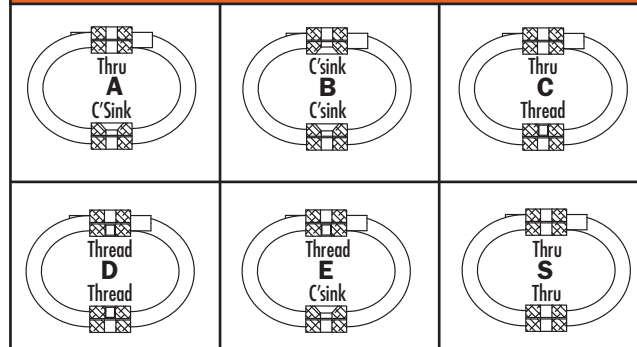
Threaded Hole Options: [] - Tapped
[H] - Helical Insert, Free Running
[L] - Helical Insert, Self Locking

Mounting Options: See Chart

Number of Loops: 08 (Reduced Number of Loops Available)

Isolator Size: See Sizing Table

Mounting Options

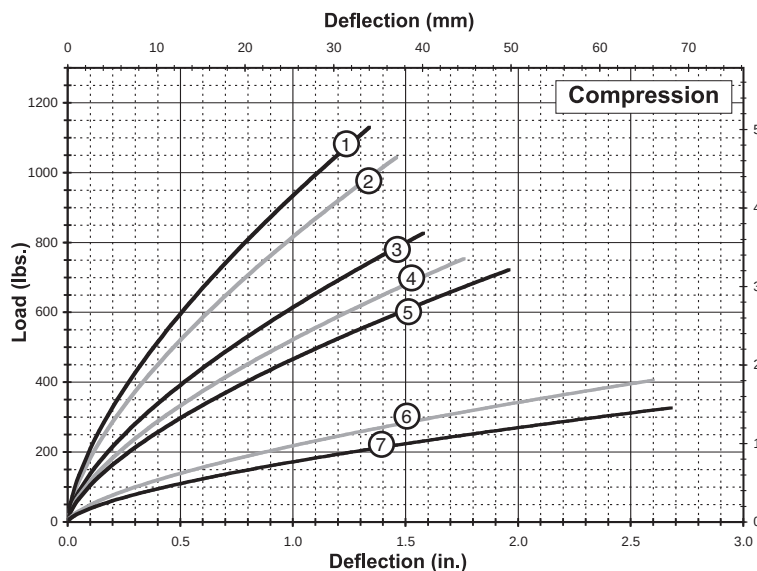


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 5.

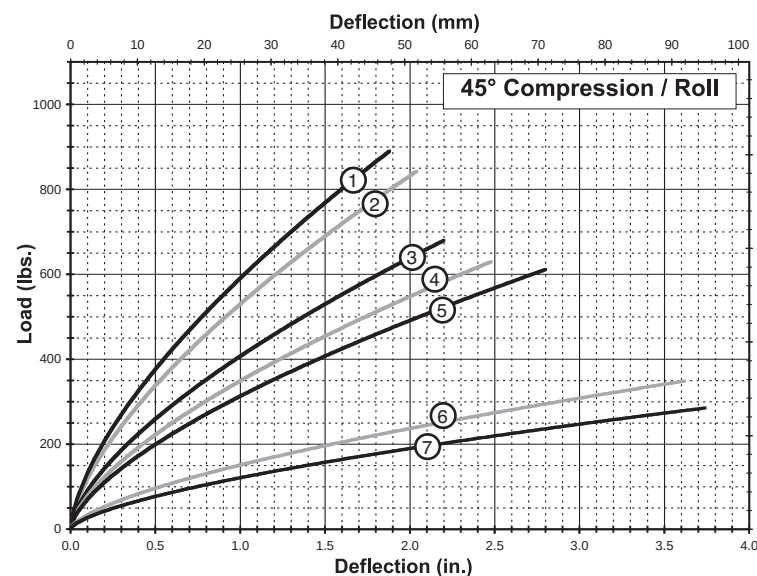
- Maximum recommended torque for threaded bar is 100 in.-lbs. (20 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)

Static Load vs. Deflection



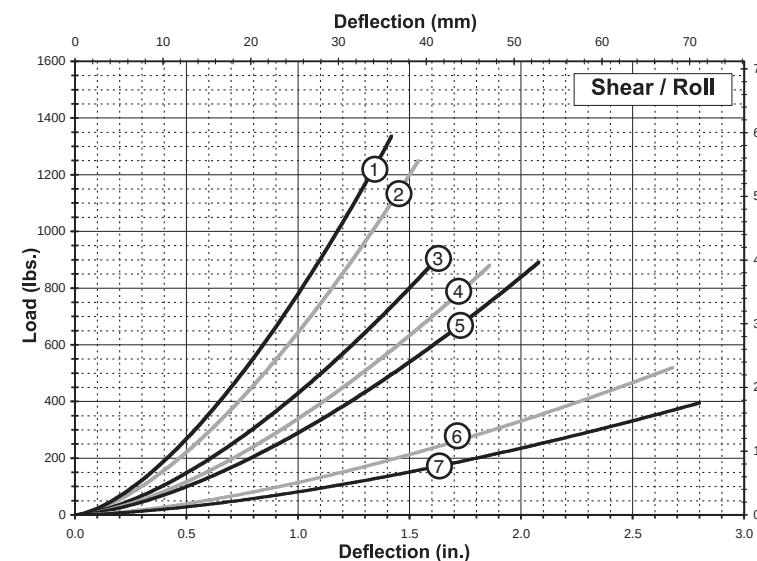
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	K _v (vibration) Lbs./in. (kN/m)	K _s (shock) Lbs./in. (kN/m)
1	WR12-200-08	330 (1 468)	1.34 (34,0)	2,090 (366)	1,020 (179)
2	WR12-300-08	305 (1 357)	1.46 (37,1)	1,830 (320)	870 (152)
3	WR12-400-08	240 (1 068)	1.58 (40,1)	1,380 (242)	630 (110)
4	WR12-500-08	220 (979)	1.76 (44,7)	1,170 (205)	520 (91)
5	WR12-600-08	210 (934)	1.96 (49,8)	1,040 (182)	450 (79)
6	WR12-700-08	120 (534)	2.60 (66,0)	490 (86)	190 (33)
7	WR12-800-08	95 (423)	2.68 (68,1)	385 (67)	150 (26)



45° Compression/Roll

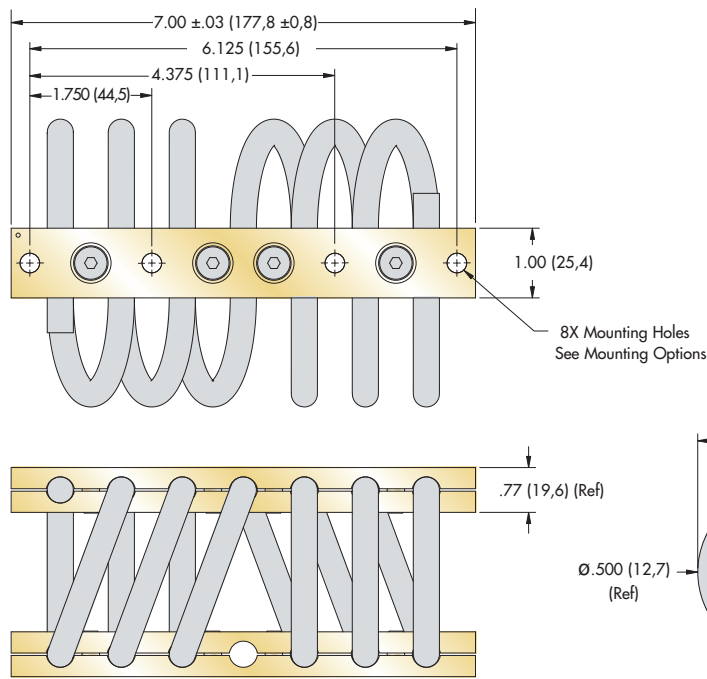
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	K _v (vibration) Lbs./in. (kN/m)	K _s (shock) Lbs./in. (kN/m)
1	WR12-200-08	265 (1 179)	1.88 (47,8)	1,350 (236)	590 (103)
2	WR12-300-08	245 (1 090)	2.04 (51,8)	1,190 (208)	500 (88)
3	WR12-400-08	200 (890)	2.20 (55,9)	910 (159)	370 (65)
4	WR12-500-08	185 (823)	2.48 (63,0)	780 (137)	310 (54)
5	WR12-600-08	175 (778)	2.80 (71,1)	700 (123)	270 (47)
6	WR12-700-08	105 (467)	3.62 (91,9)	340 (60)	120 (21)
7	WR12-800-08	84 (373)	3.74 (95,0)	270 (47)	90 (16)



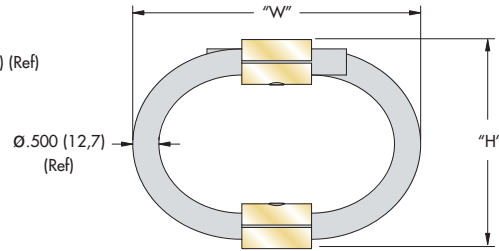
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	K _v (vibration) Lbs./in. (kN/m)	K _s (shock) Lbs./in. (kN/m)
1	WR12-200-08	205 (912)	1.42 (36,1)	740 (130)	740 (130)
2	WR12-300-08	195 (867)	1.54 (39,1)	640 (112)	640 (112)
3	WR12-400-08	150 (667)	1.66 (42,2)	440 (77)	440 (77)
4	WR12-500-08	140 (623)	1.86 (47,2)	370 (65)	370 (65)
5	WR12-600-08	135 (601)	2.08 (52,8)	340 (60)	340 (60)
6	WR12-700-08	60 (267)	2.68 (68,1)	155 (27)	155 (27)
7	WR12-800-08	45 (200)	2.80 (71,1)	110 (19)	110 (19)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)



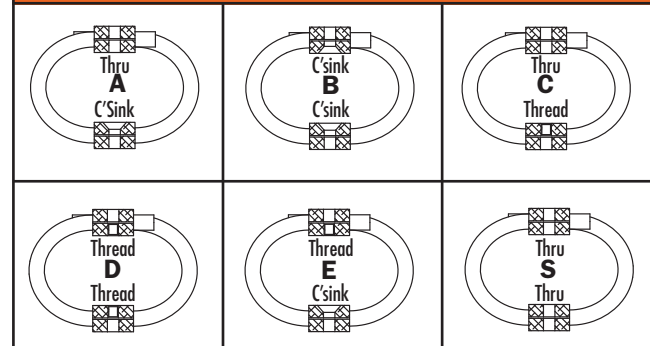
Size	Height "H" in. (mm)	Width (Ref) "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
WR16-206	3.00 (76)	3.63 (92)	3.00 (1,36)	A, B, C, D, E, S	$\begin{matrix} \text{Ø.354}^{+.005} \\ \text{Ø9,0}^{+.013} \\ \text{Ø9,0}^{-.038} \end{matrix}$	1/4-28 UNF *(M8 X 1,25)	82° (90°)
WR16-306	3.25 (83)	4.00 (102)	3.15 (1,43)				
WR16-406	3.50 (89)	4.13 (105)	3.30 (1,50)				
WR16-606	3.75 (95)	4.75 (121)	3.68 (1,67)				
WR16-706	4.25 (108)	5.25 (133)	3.98 (1,81)				
WR16-806	4.90 (124)	5.65 (144)	4.46 (2,02)				
WR16-856	5.40 (137)	6.13 (156)	4.80 (2,18)				
WR16-906	6.10 (155)	7.10 (180)	5.10 (2,31)				

* Tapped M8 x 1.25, Inserts M7 x 1.0

Model Number Ordering Code

WR16 - 406 - 6 D H M	
WR16	Isolator Size: See Sizing Table
406	Number of Loops: 06 (Reduced Number of Loops Available)
6	Mounting Options: See Chart
D	Threaded Hole Options: [H] - Helical Insert, Free Running [L] - Helical Insert, Self Locking
H	Add "M" for Metric For C'sink and Threaded Options
M	

Mounting Options

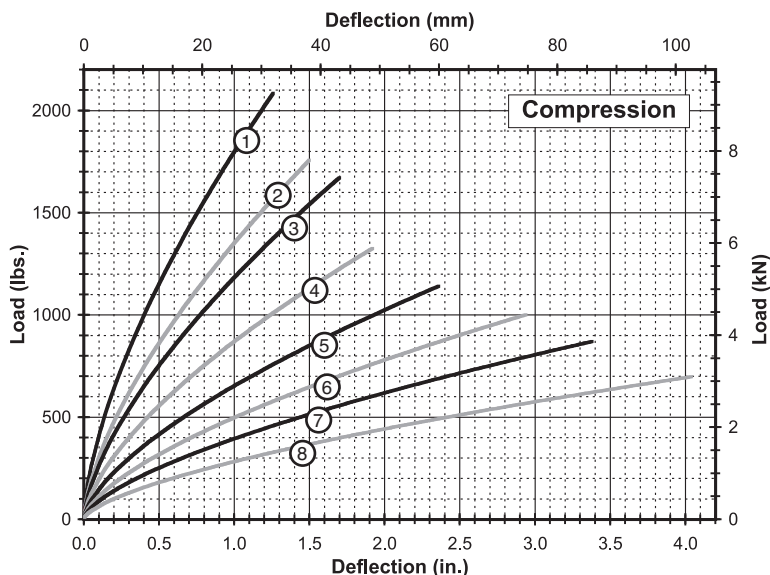


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 5.

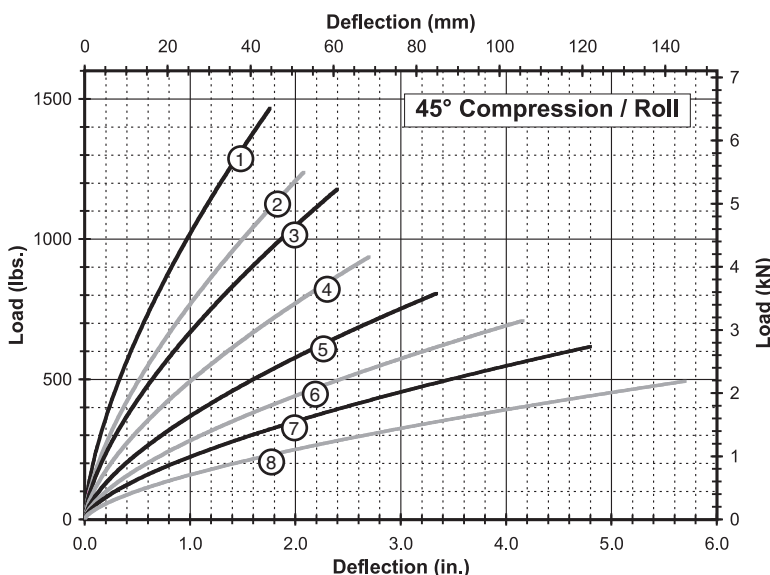
- Maximum recommended torque for threaded bar is 115 in.-lbs. (20 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)

Static Load vs. Deflection



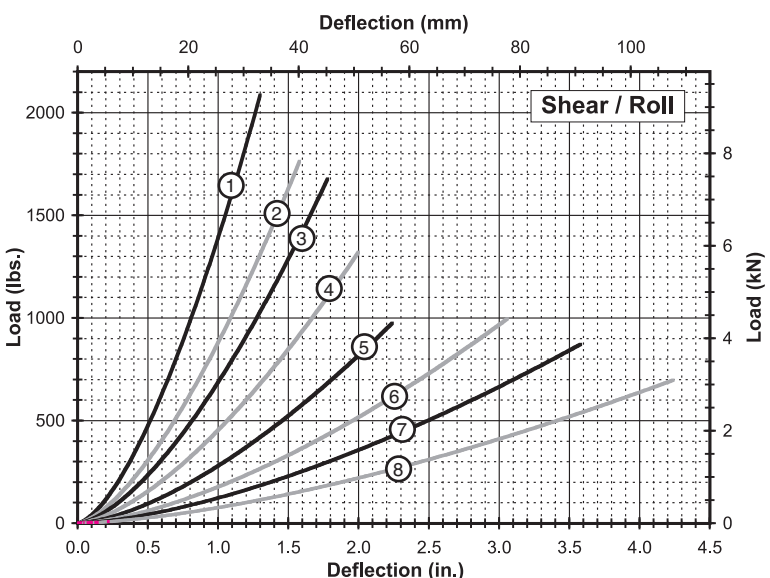
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR16-206-06	615 (2 736)	1.26 (32,0)	4,090 (716)	2,010 (352)
2	WR16-306-06	515 (2 291)	1.50 (38,1)	3,030 (531)	1,420 (249)
3	WR16-406-06	485 (2 157)	1.70 (43,2)	2,630 (461)	1,190 (208)
4	WR16-606-06	390 (1 735)	1.92 (48,8)	1,960 (343)	840 (147)
5	WR16-706-06	330 (1 468)	2.36 (59,9)	1,460 (256)	590 (103)
6	WR16-806-06	290 (1 290)	2.94 (74,7)	1,120 (196)	410 (72)
7	WR16-856-06	255 (1 134)	3.38 (85,9)	880 (154)	310 (54)
8	WR16-906-06	205 (912)	4.04 (102,6)	635 (111)	210 (37)



45° Compression/Roll

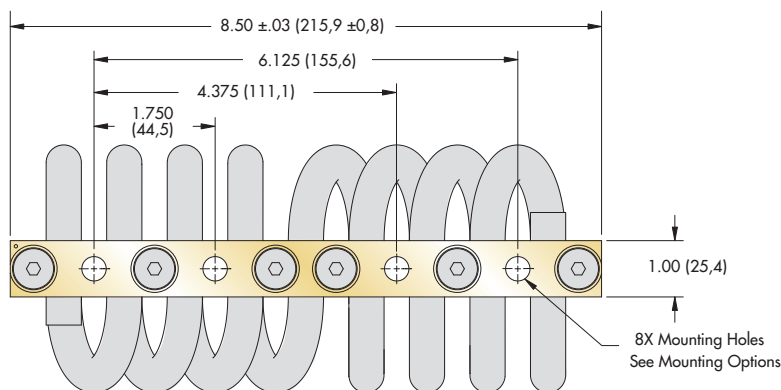
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR16-206-06	435 (1 935)	1.76 (44,7)	2,310 (405)	1,010 (177)
2	WR16-306-06	365 (1 624)	2.08 (52,8)	1,700 (298)	720 (126)
3	WR16-406-06	345 (1 535)	2.40 (61,0)	1,500 (263)	600 (105)
4	WR16-606-06	275 (1 223)	2.70 (68,6)	1,110 (194)	420 (74)
5	WR16-706-06	235 (1 045)	3.34 (84,8)	825 (144)	290 (51)
6	WR16-806-06	205 (912)	4.16 (105,7)	630 (110)	210 (37)
7	WR16-856-06	180 (801)	4.80 (121,9)	500 (88)	160 (28)
8	WR16-906-06	140 (623)	5.70 (144,8)	355 (62)	110 (19)



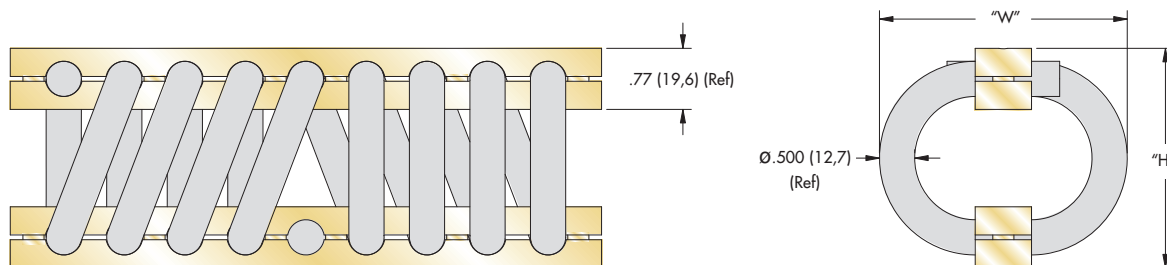
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR16-206-06	335 (1 490)	1.30 (33,0)	1,260 (221)	1,260 (221)
2	WR16-306-06	275 (1 223)	1.58 (40,1)	890 (156)	890 (156)
3	WR16-406-06	255 (1 134)	1.78 (45,2)	740 (130)	740 (130)
4	WR16-606-06	205 (912)	2.00 (50,8)	520 (91)	520 (91)
5	WR16-706-06	135 (601)	2.24 (56,9)	340 (60)	340 (60)
6	WR16-806-06	100 (445)	3.06 (77,7)	260 (46)	260 (46)
7	WR16-856-06	75 (334)	3.58 (90,9)	190 (33)	190 (33)
8	WR16-906-06	50 (222)	4.24 (107,7)	130 (23)	130 (23)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)



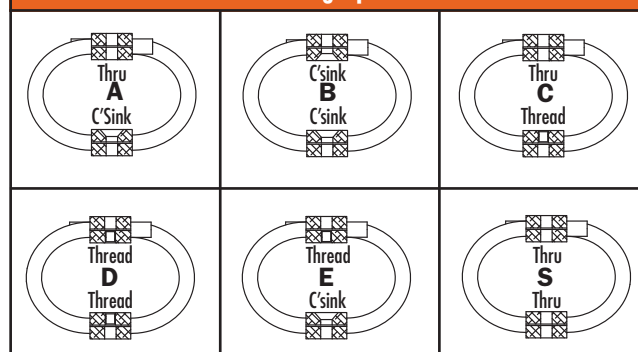
Size	Height "H" in. (mm)	Width (Ref) "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
WR16-200	3.00 (76)	3.63 (92)	4.00 (1,81)	A, B, C, D, E, S	Ø.354 + .005 - .015 (Ø9.0 +0.13 - 0.38)	1/4-28 UNF *(M8 X 1,25)	82° (90°)
WR16-300	3.25 (83)	4.00 (102)	4.20 (1,91)				
WR16-400	3.50 (89)	4.13 (105)	4.40 (2,00)				
WR16-600	3.75 (95)	4.75 (121)	4.90 (2,22)				
WR16-700	4.25 (108)	5.25 (133)	5.30 (2,40)				
WR16-800	4.90 (124)	5.65 (144)	5.95 (2,70)				
WR16-850	5.40 (137)	6.13 (156)	6.40 (2,90)				
WR16-900	6.10 (155)	7.10 (180)	6.80 (3,09)				

* Tapped M8 x 1.25, Inserts M7 x 1.0

Model Number Ordering Code

WR16 - 400 - 8 D H M	
WR16	Model Number
400	Size
8	Number of Loops
D	Mounting Options
H	Threaded Hole Options
M	Add "M" for Metric For C'sink and Threaded Options
	Threaded Hole Options: [] - Tapped [T] - Tapped [H] - Helical Insert, Free Running [L] - Helical Insert, Self Locking
	Mounting Options: See Chart
	Number of Loops: 08 (Reduced Number of Loops Available)
	Isolator Size: See Sizing Table

Mounting Options

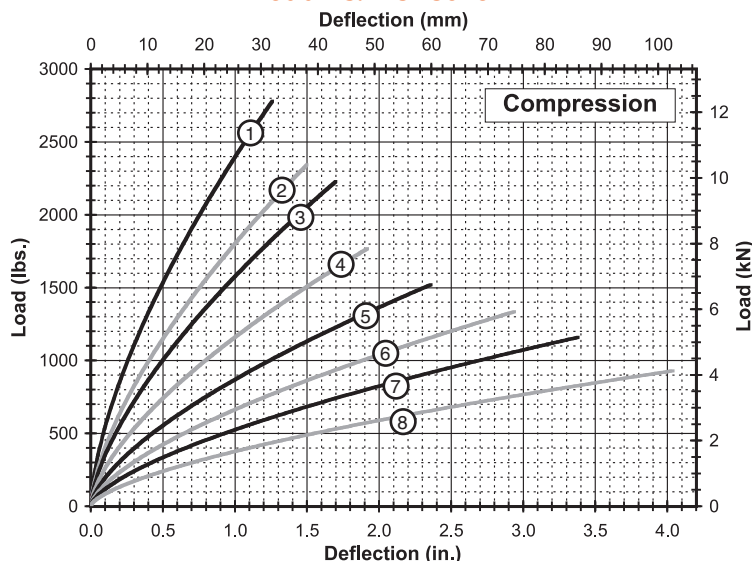


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 5.

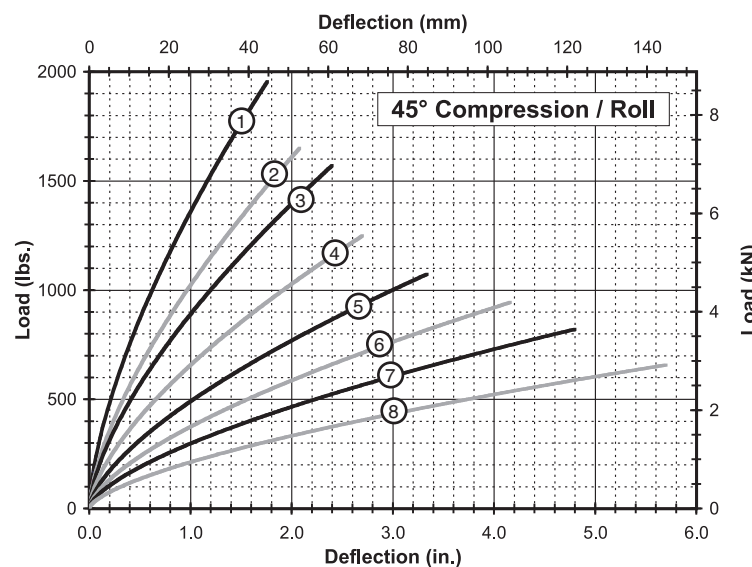
- Maximum recommended torque for threaded bar is 115 in.-lbs. (20 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)

Static Load vs. Deflection



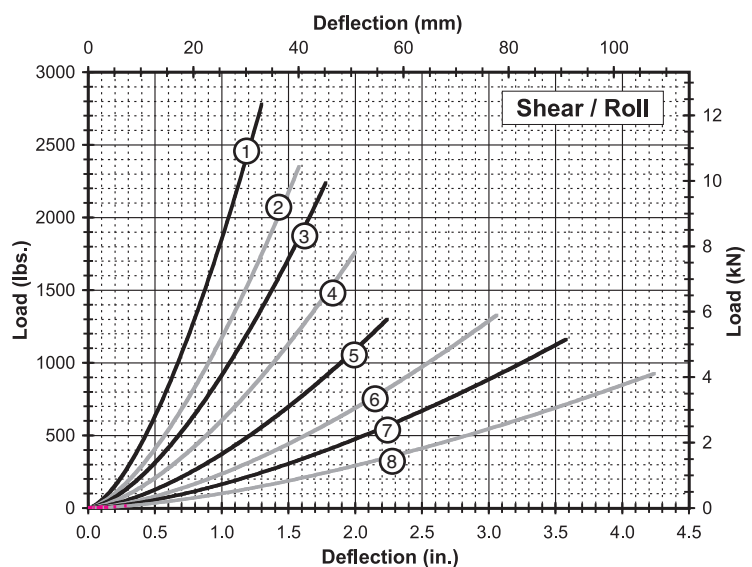
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR16-200-08	820 (3 648)	1.26 (32,0)	5,450 (954)	2,690 (471)
2	WR16-300-08	685 (3 047)	1.50 (38,1)	4,040 (708)	1,900 (333)
3	WR16-400-08	645 (2 869)	1.70 (43,2)	3,500 (613)	1,590 (278)
4	WR16-600-08	520 (2 313)	1.92 (48,8)	2,610 (457)	1,120 (196)
5	WR16-700-08	440 (1 957)	2.36 (59,9)	1,940 (340)	780 (137)
6	WR16-800-08	390 (1 735)	2.94 (74,7)	1,490 (261)	550 (96)
7	WR16-850-08	340 (1 512)	3.38 (85,9)	1,180 (207)	420 (74)
8	WR16-900-08	270 (1 201)	4.04 (102,6)	845 (148)	280 (49)



45° Compression/Roll

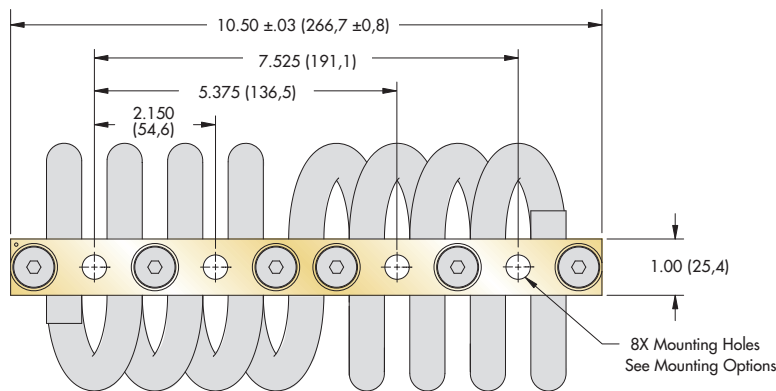
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR16-200-08	580 (2 580)	1.76 (44,7)	3,080 (539)	1,350 (236)
2	WR16-300-08	485 (2 157)	2.08 (52,8)	2,270 (398)	960 (168)
3	WR16-400-08	460 (2 046)	2.40 (61,0)	1,990 (349)	790 (138)
4	WR16-600-08	365 (1 624)	2.70 (68,6)	1,480 (259)	560 (98)
5	WR16-700-08	315 (1 401)	3.34 (84,8)	1,100 (193)	390 (68)
6	WR16-800-08	275 (1 223)	4.16 (105,7)	840 (147)	280 (49)
7	WR16-850-08	240 (1 068)	4.80 (121,9)	670 (117)	210 (37)
8	WR16-900-08	185 (823)	5.70 (144,8)	475 (83)	140 (25)



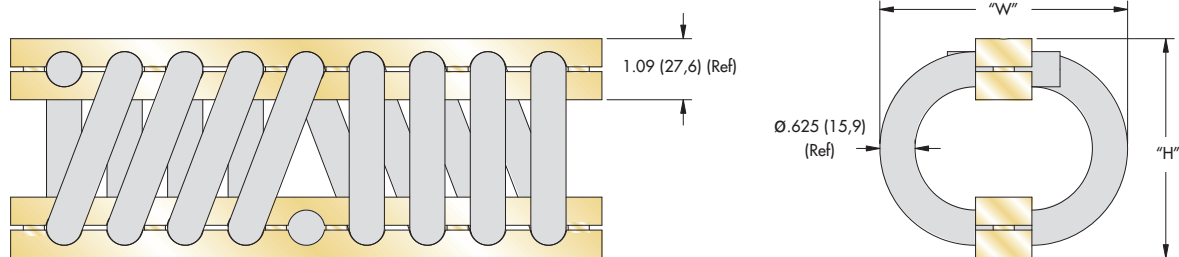
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR16-200-08	660 (2 936)	1.30 (33,0)	1,680 (294)	1,680 (294)
2	WR16-300-08	385 (1 713)	1.58 (40,1)	1,180 (207)	1,180 (207)
3	WR16-400-08	350 (1 557)	1.78 (45,2)	990 (173)	990 (173)
4	WR16-600-08	270 (1 201)	2.00 (50,8)	690 (121)	690 (121)
5	WR16-700-08	180 (801)	2.24 (56,9)	460 (81)	460 (81)
6	WR16-800-08	135 (601)	3.06 (77,7)	340 (60)	340 (60)
7	WR16-850-08	100 (445)	3.58 (90,9)	260 (46)	260 (46)
8	WR16-900-08	65 (289)	4.24 (107,7)	170 (30)	170 (30)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)



Size	Height "H" in. (mm)	Width (Ref) "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)	
WR20-200	3.50 (89)	± .13 (± 3,30)	4.00 (102)	6.62 (3,00)	C, D	Ø.433 ⁺ _{-.005} (Ø11,0 ⁺ _{+ 0,13} - 0,38)	3/8-24 UNF (M10 X 1,5)	82° (90°)
WR20-300	3.90 (99)		4.40 (112)	7.06 (3,20)				
WR20-400	4.00 (102)		4.75 (121)	7.50 (3,40)				
WR20-600	4.30 (109)		5.31 (135)	8.16 (3,70)				
WR20-700	4.70 (119)		6.00 (152)	8.83 (4,00)				
WR20-800	5.00 (127)		6.50 (165)	9.50 (4,31)				
WR20-900	5.30 (135)		7.00 (178)	10.20 (4,63)				

Model Number Ordering Code

WR20 - 400 - 8 D H M

- WR20 - Base Model
- 400 - Isolator Size
- 8 - Number of Loops
- D - Mounting Options
- H - Threaded Hole Options
- M - Add "M" for Metric

For C'sink and Threaded Options

Threaded Hole Options:

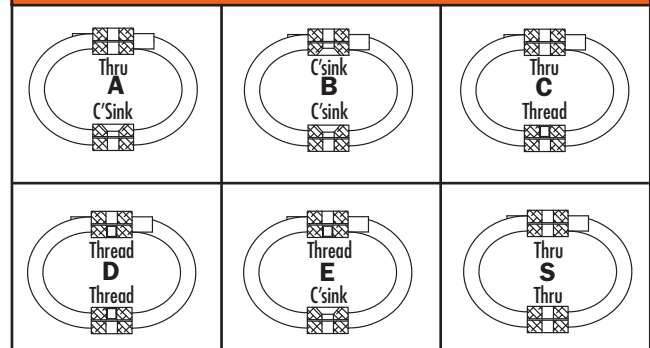
- [] - Tapped
- [H] - Helical Insert, Free Running
- [L] - Helical Insert, Self Locking

Mounting Options: See Chart

Number of Loops: 08 (Reduced Number of Loops Available)

Isolator Size: See Sizing Table

Mounting Options

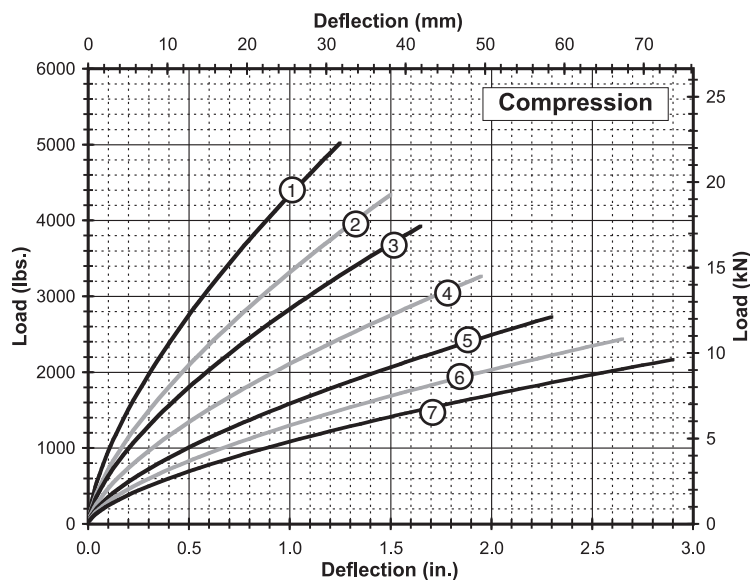


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 5.

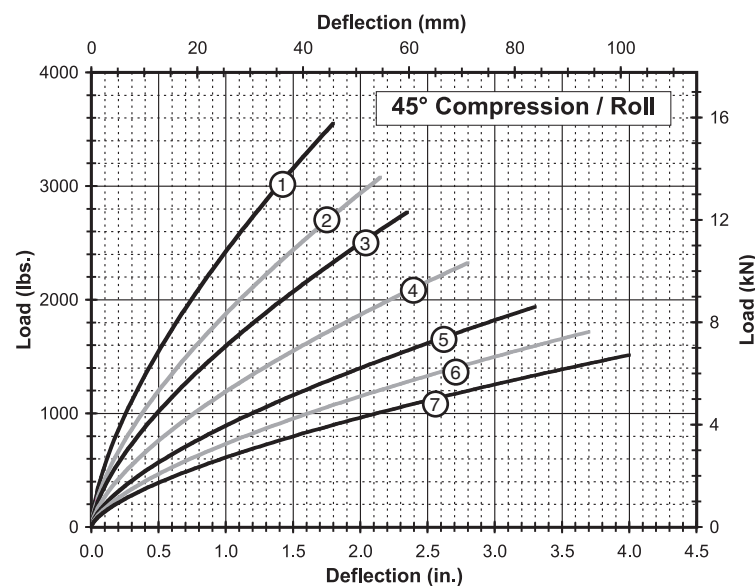
- Maximum recommended torque for threaded bar is 415 in.-lbs. (50 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)

Static Load vs. Deflection



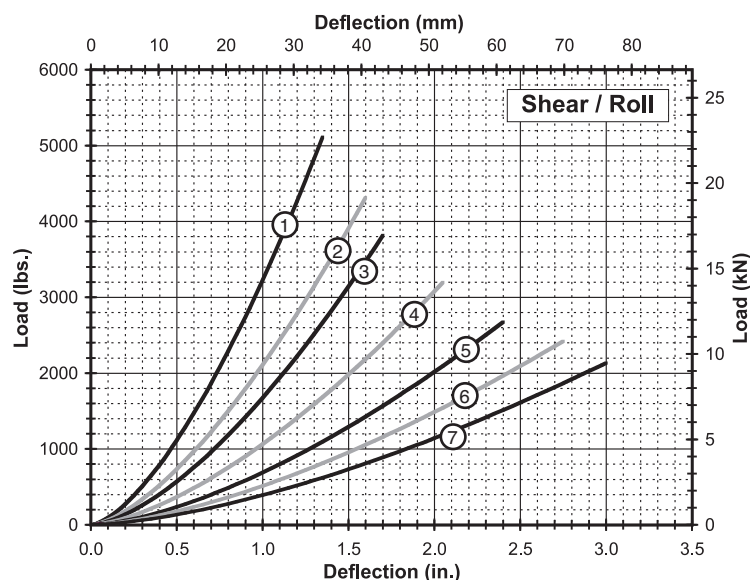
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR20-200-08	1,450 (6 450)	1.25 (31,8)	9,570 (1 676)	4,850 (849)
2	WR20-300-08	1,230 (5 471)	1.50 (38,1)	7,190 (1 259)	3,480 (609)
3	WR20-400-08	1,140 (5 071)	1.65 (41,9)	6,310 (1 105)	2,880 (504)
4	WR20-600-08	945 (4 204)	1.95 (49,5)	4,690 (821)	2,030 (356)
5	WR20-700-08	790 (3 514)	2.30 (58,4)	3,520 (616)	1,440 (252)
6	WR20-800-08	715 (3 180)	2.65 (67,3)	2,920 (511)	1,120 (196)
7	WR20-900-08	630 (2 802)	2.90 (73,7)	2,440 (427)	910 (159)



45° Compression/Roll

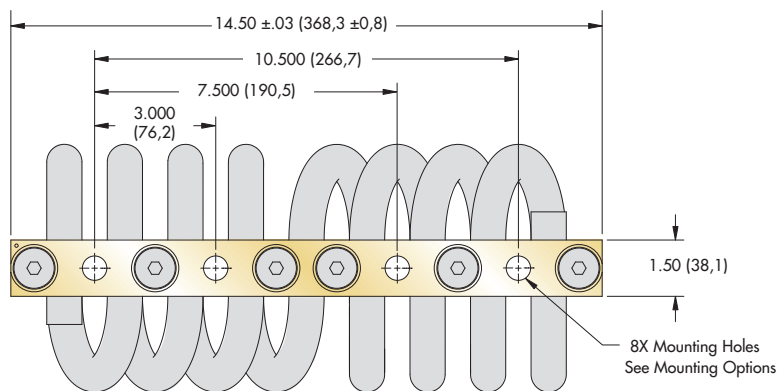
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR20-200-08	1,020 (4 537)	1.80 (45,7)	5,430 (951)	2,390 (419)
2	WR20-300-08	895 (3 981)	2.15 (54,6)	4,230 (741)	1,740 (305)
3	WR20-400-08	805 (3 581)	2.35 (59,7)	3,580 (627)	1,430 (250)
4	WR20-600-08	670 (2 980)	2.80 (71,1)	2,670 (468)	1,010 (177)
5	WR20-700-08	560 (2 491)	3.30 (83,8)	2,000 (350)	710 (124)
6	WR20-800-08	505 (2 246)	3.70 (94,0)	1,630 (285)	560 (98)
7	WR20-900-08	445 (1 979)	4.00 (101,6)	1,360 (238)	460 (81)



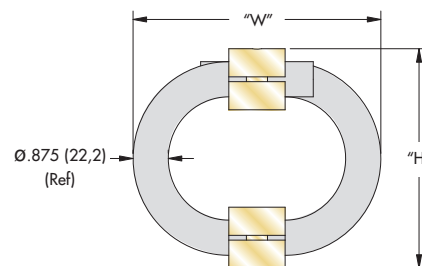
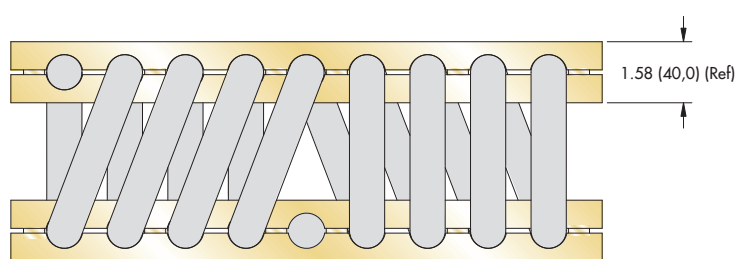
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR20-200-08	790 (3 514)	1.35 (34,3)	2,990 (524)	2,990 (524)
2	WR20-300-08	680 (3 025)	1.60 (40,6)	2,140 (375)	2,140 (375)
3	WR20-400-08	590 (2 624)	1.70 (43,2)	1,760 (308)	1,760 (308)
4	WR20-600-08	480 (2 135)	2.05 (52,1)	1,230 (215)	1,230 (215)
5	WR20-700-08	340 (1 512)	2.40 (61,0)	870 (152)	870 (152)
6	WR20-800-08	275 (1 223)	2.75 (69,9)	700 (123)	700 (123)
7	WR20-900-08	220 (979)	3.00 (76,2)	560 (98)	560 (98)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)

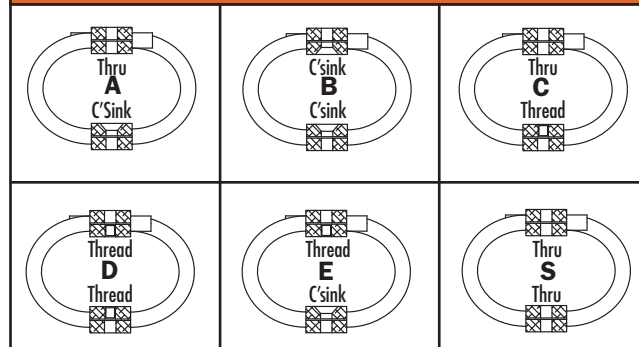


Size	Height "H" in. (mm)	Width (Ref) "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)		
WR28-200	5.25 (133)	± .25 (± 6,35)	5.50 (140)	18.5 (8,40)	C, D	Ø.531 ⁺ _{-.005} (Ø13,5 ⁺ _{+ 0,13} - 0,38)	1/2-13 UNC (M12 X 1,75)	82° (90°)	
WR28-400	6.00 (152)		6.50 (165)	21.0 (9,53)					A, B, C, D, E, S
WR28-600	6.25 (159)		7.00 (178)	21.8 (9,90)					
WR28-800	7.50 (191)		8.25 (210)	25.3 (11,50)					
WR28-900	8.50 (216)		9.25 (235)	28.0 (12,70)					
WR28-950	8.50 (216)		11.25 (286)	30.6 (13,90)					

Model Number Ordering Code

WR28 - 400 - 8 D H M	
WR28	Isolator Size: See Sizing Table
400	Number of Loops: 08 (Reduced Number of Loops Available)
8	Mounting Options: See Chart
D	Threaded Hole Options: [] - Tapped [H] - Helical Insert, Free Running [L] - Helical Insert, Self Locking
H	Add "M" for Metric For C'sink and Threaded Options
M	

Mounting Options

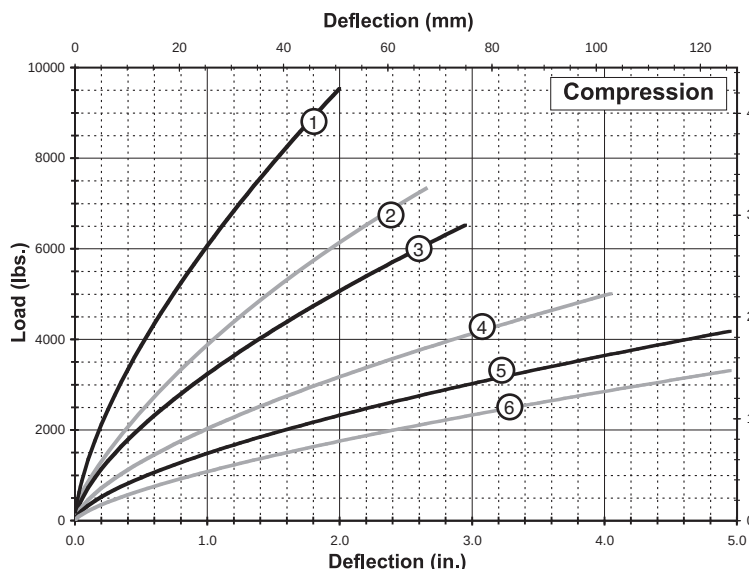


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 5.

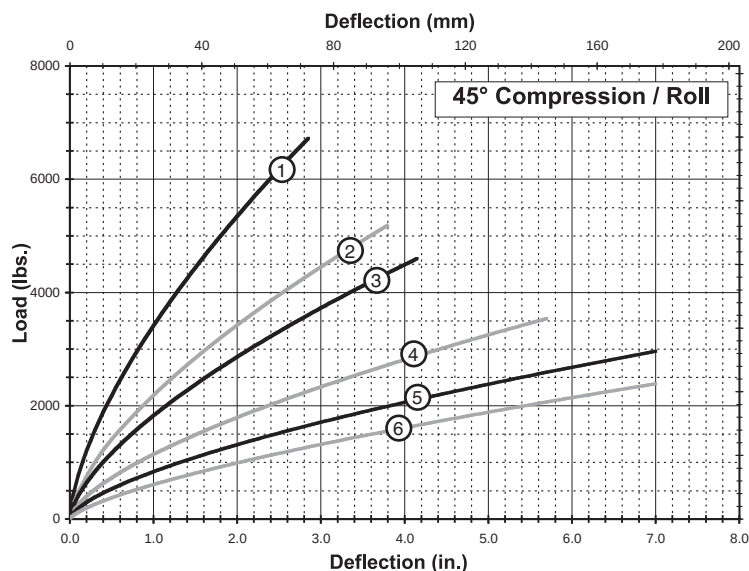
- Maximum recommended torque for threaded bar 95 ft.-lbs. (100 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)

Static Load vs. Deflection



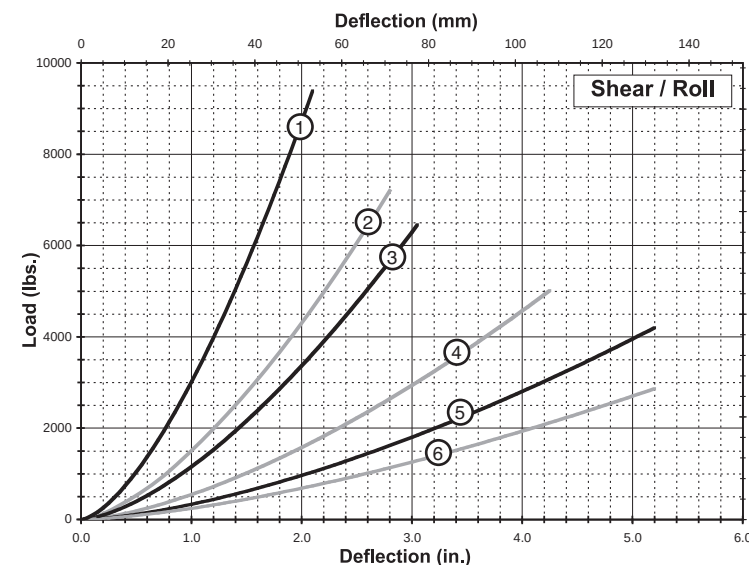
Compression

Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR28-200-08	2,760 (12,28)	2.00 (50,8)	13,490 (2 362)	5,770 (1 010)
2	WR28-400-08	2,120 (9,43)	2.65 (67,3)	8,640 (1 513)	3,340 (585)
3	WR28-600-08	1,900 (8,45)	2.95 (74,9)	7,250 (1 270)	2,680 (469)
4	WR28-800-08	1,470 (6,54)	4.05 (102,9)	4,570 (800)	1,500 (263)
5	WR28-900-08	1,220 (5,43)	4.95 (125,7)	3,340 (585)	1,030 (180)
6	WR28-950-08	840 (3,74)	4.95 (125,7)	2,150 (377)	790 (138)



45° Compression/Roll

Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR28-200-08	1,960 (8,72)	2.85 (72,4)	7,700 (1 348)	2,870 (503)
2	WR28-400-08	1,500 (6,67)	3.80 (96,5)	4,910 (860)	1,650 (289)
3	WR28-600-08	1,350 (6,01)	4.15 (105,4)	4,100 (718)	1,340 (235)
4	WR28-800-08	1,000 (4,45)	5.70 (144,8)	2,560 (448)	750 (131)
5	WR28-900-08	730 (3,25)	7.00 (177,8)	1,870 (327)	510 (89)
6	WR28-950-08	475 (2,11)	7.00 (177,8)	1,210 (212)	400 (70)



Shear/Roll

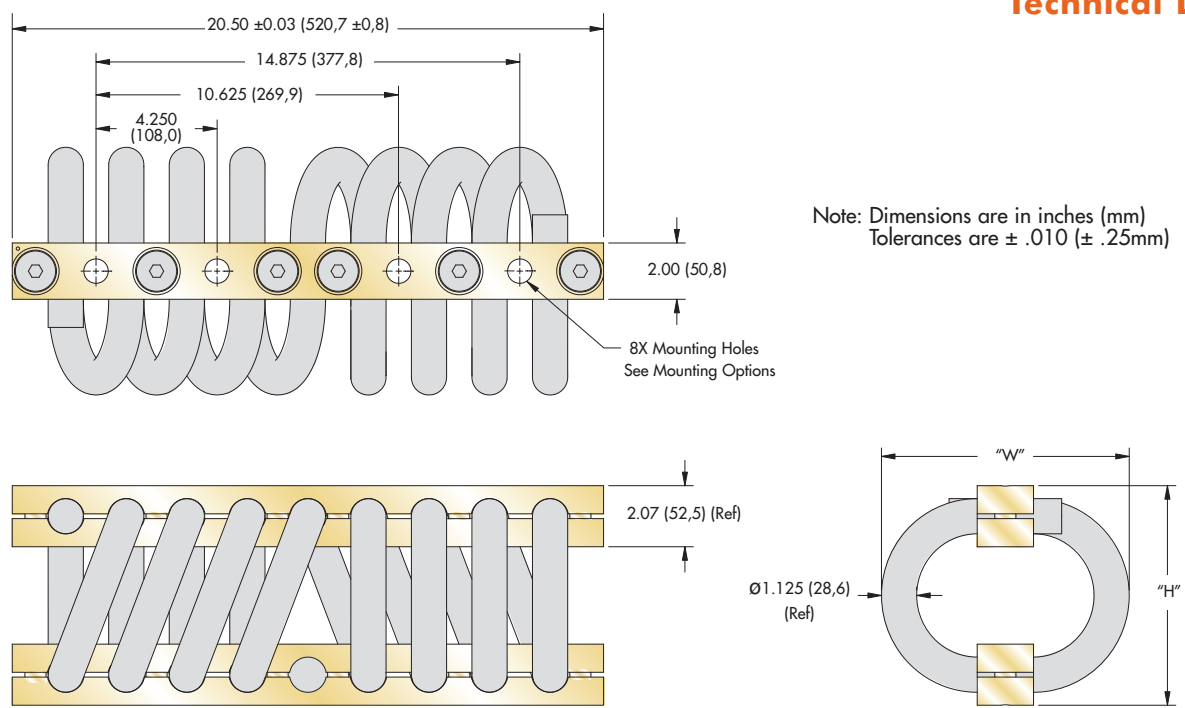
Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR28-200-08	1,380 (6,14)	2.10 (53,3)	3,530 (618)	3,530 (618)
2	WR28-400-08	795 (3,54)	2.80 (71,1)	2,030 (356)	2,030 (356)
3	WR28-600-08	650 (2,89)	3.05 (77,5)	1,660 (291)	1,660 (291)
4	WR28-800-08	365 (1,62)	4.25 (108,0)	930 (163)	930 (163)
5	WR28-900-08	250 (1,11)	5.20 (132,1)	640 (112)	640 (112)
6	WR28-950-08	170 (0,76)	5.20 (132,1)	440 (77)	440 (77)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.

Wire Rope Isolators

WR36 Series

Technical Data



Size	Height "H" in. (mm)	Width "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
WR36-200	7.00 (178)	$\pm .25$ (± 6.35)	8.50 (216)	A, B, C, D, E, S	$\begin{matrix} 0.781 + .005 \\ - .015 \\ (\emptyset 19.8 + 0.13 \\ - 0.38) \end{matrix}$	3/4-10 UNC (M18 X 2.5)	82° (90°)
WR36-400	8.50 (216)		9.50 (241)				
WR36-600	9.25 (235)		10.25 (260)				

Model Number Ordering Code

WR36 - 400 - 8 D H M

- Add "M" for Metric For C'sink and Threaded Options
- Threaded Hole Options: [] - Tapped, [H] - Helical Insert, Free Running, [L] - Helical Insert, Self Locking
- Mounting Options: See Chart
- Number of Loops: 08 (Reduced Number of Loops Available)
- Isolator Size: See Sizing Table

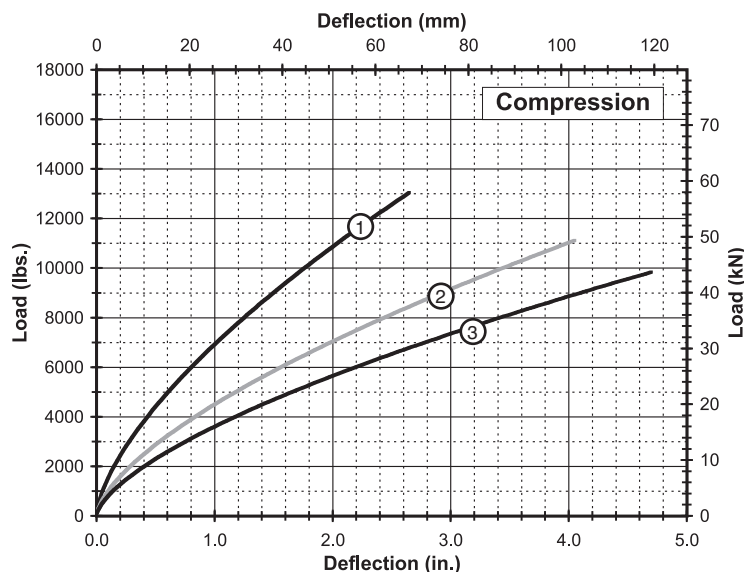
Mounting Options

Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 5.

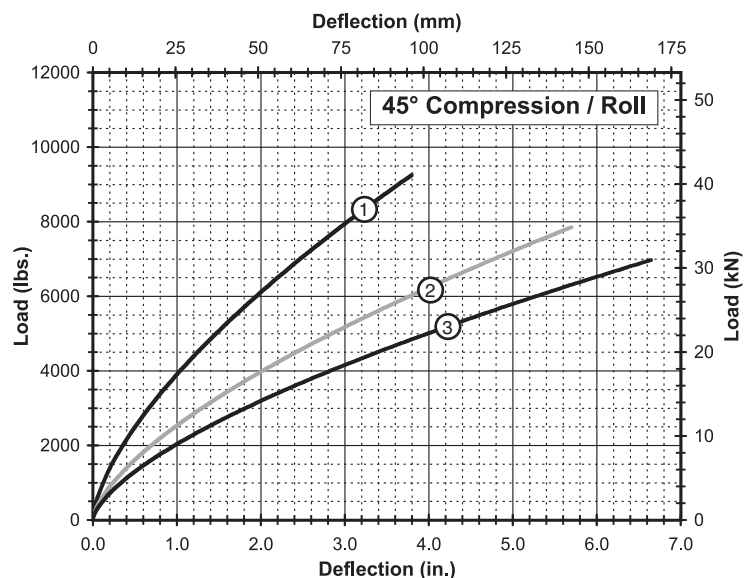
- Maximum recommended torque for threaded bar is 300 ft.-lbs. (300 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)

Static Load vs. Deflection



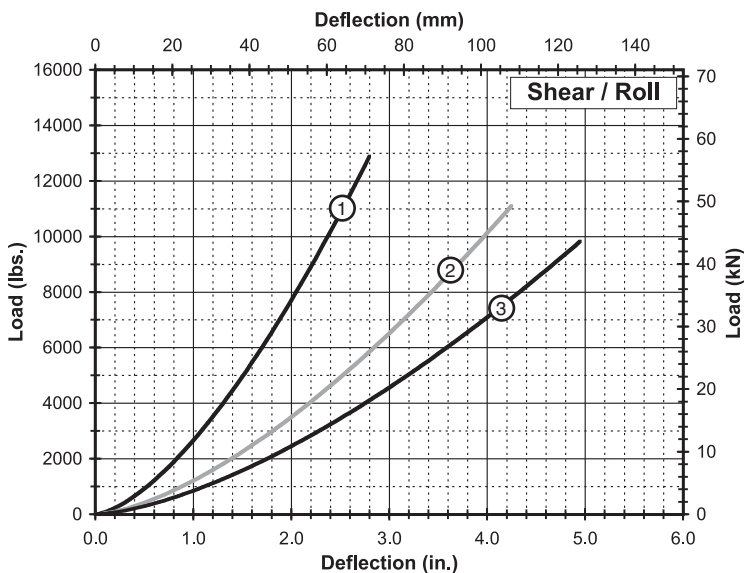
Compression

Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR36-200-08	3,790 (16,86)	2.65 (67,3)	15,450 (2 706)	5,960 (1 044)
2	WR36-400-08	3,260 (14,50)	4.05 (102,9)	10,130 (1 774)	3,330 (583)
3	WR36-600-08	2,870 (12,77)	4.70 (119,4)	8,080 (1 415)	2,540 (445)



45° Compression/Roll

Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR36-200-08	2,690 (11,97)	3.80 (96,5)	8,800 (1 541)	2,960 (518)
2	WR36-400-08	2,220 (9,88)	5.70 (144,8)	5,670 (993)	1,670 (292)
3	WR36-600-08	1,790 (7,96)	6.65 (168,9)	4,560 (799)	1,270 (222)

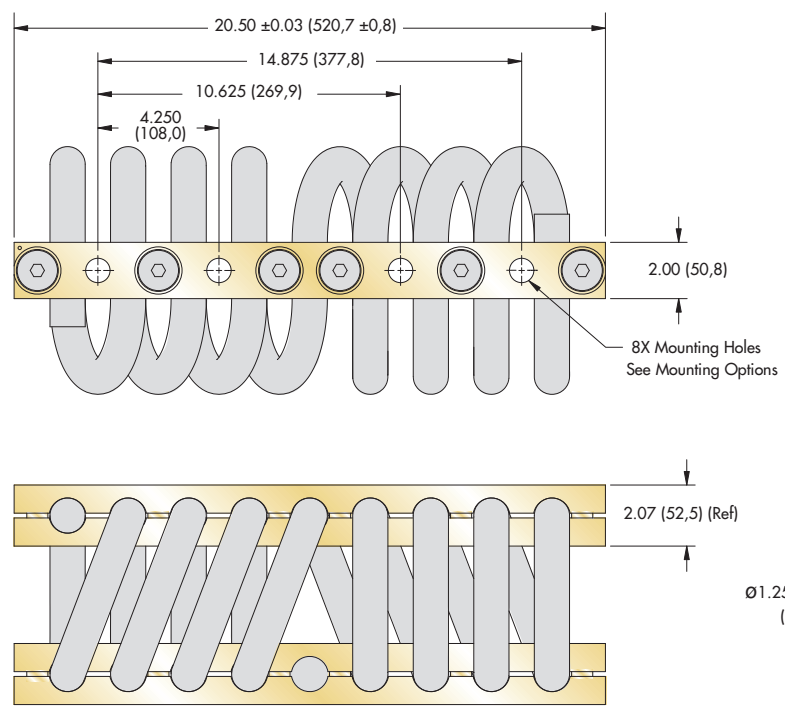


Shear/Roll

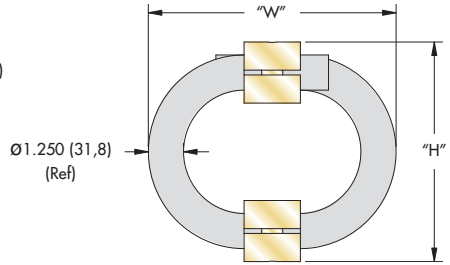
Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR36-200-08	1,420 (6,32)	2.80 (71,1)	3,630 (636)	3,630 (636)
2	WR36-400-08	810 (3,60)	4.25 (108,0)	2,060 (361)	2,060 (361)
3	WR36-600-08	615 (2,74)	4.95 (125,7)	1,570 (275)	1,570 (275)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.

Technical Data



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)



Size	Height "H" in. (mm)		Width (Ref) "W" in. (mm)	Unit Weight Lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
WR40-200	7.00 (178)	$\pm .25$ (± 6.35)	8.25 (210)	53 (24,0)	A, B, C, D, E, S	$\emptyset.781^{+.005}_{-.015}$	3/4-10 UNC (M18 X 2,5)	82° (90°)
WR40-400	8.50 (216)		9.75 (248)	60 (27,2)		$(\emptyset 19.8^{+.013}_{-.038})$		

Model Number Ordering Code

WR40 - 400 - 8 D H M

- WR40** - Isolator Size: See Sizing Table
- 400** - Number of Loops: 08 (Reduced Number of Loops Available)
- 8** - Mounting Options: See Chart
- D** - Threaded Hole Options: [] - Tapped, [H] - Helical Insert, Free Running, [L] - Helical Insert, Self Locking
- H** - Add "M" for Metric For C'sink and Threaded Options
- M** - Isolator Size: See Sizing Table

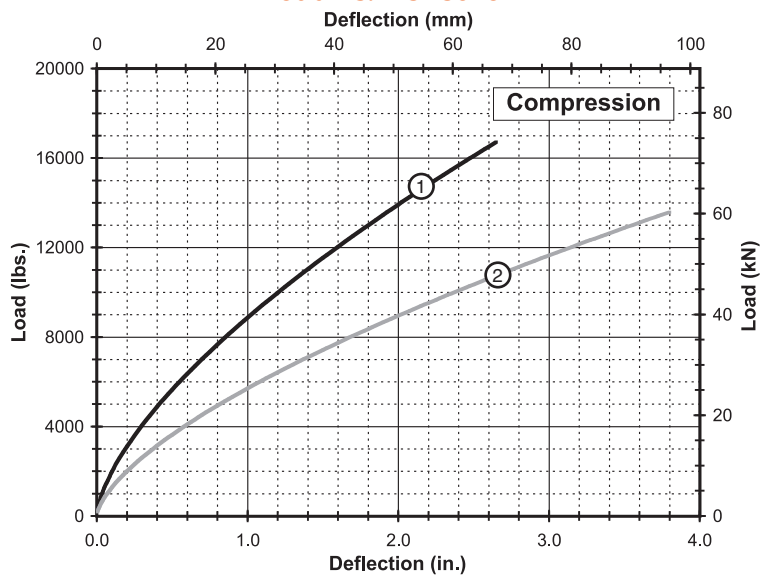
Mounting Options

Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 5.

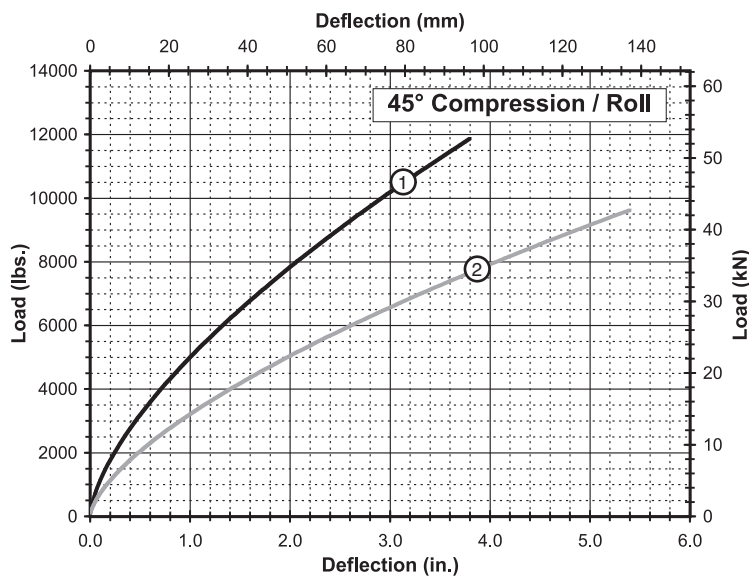
- Maximum recommended torque for threaded bar is 300 ft.-lbs. (300 Nm)
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)

Static Load vs. Deflection



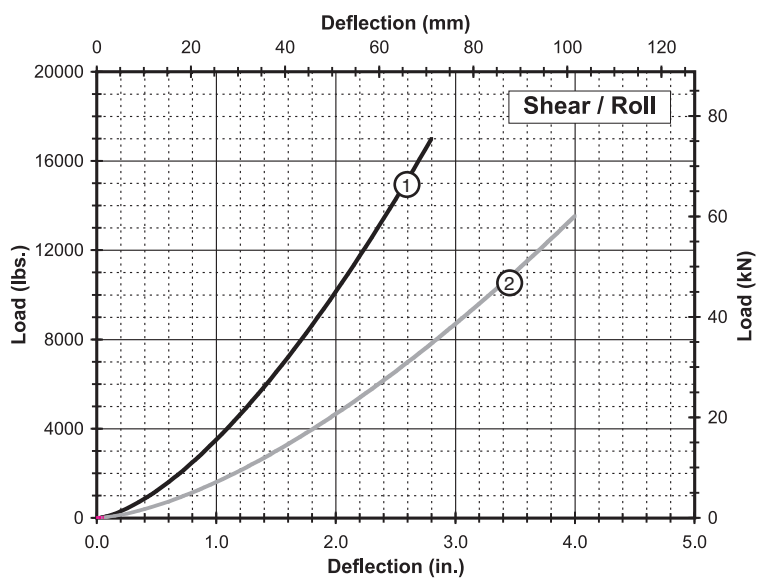
Compression

Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR40-200-08	4,860 (21,62)	2.65 (67,3)	19,800 (3 468)	7,640 (1 338)
2	WR40-400-08	3,960 (17,61)	3.80 (96,5)	12,770 (2 236)	4,330 (758)



45° Compression / Roll

Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR40-200-08	3,440 (15,30)	3.80 (96,5)	11,240 (1 968)	3,790 (664)
2	WR40-400-08	2,790 (12,41)	5.40 (137,2)	7,170 (1 256)	2,160 (378)



Shear / Roll

Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	WR40-200-08	1,870 (8,32)	2.80 (71,1)	4,790 (839)	4,790 (839)
2	WR40-400-08	1,044 (4,64)	4.00 (101,6)	2,670 (468)	2,670 (468)

Note: Performance provided for full loop models with standard (302/304) stainless steel cable.
Consult ITT ENIDINE for other options. Do not extrapolate curves.



U.S. Patents 6,290,217
6,244,579

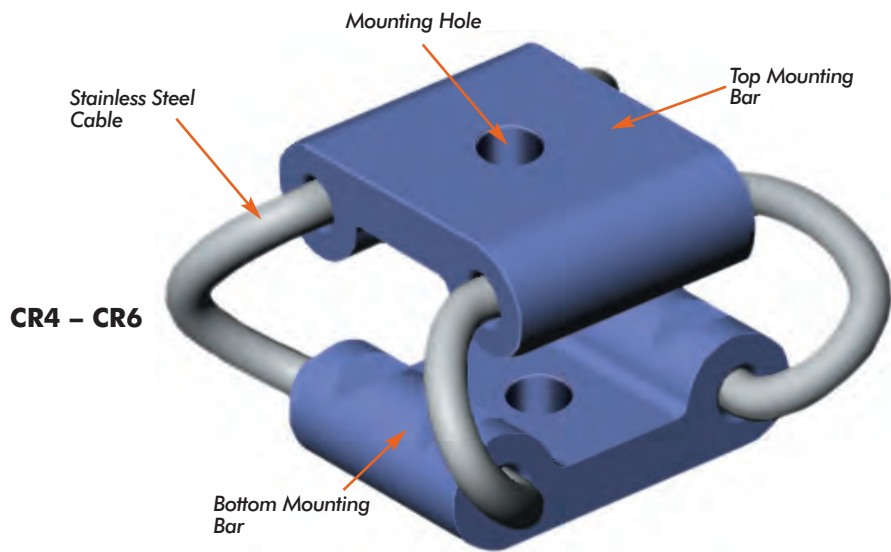
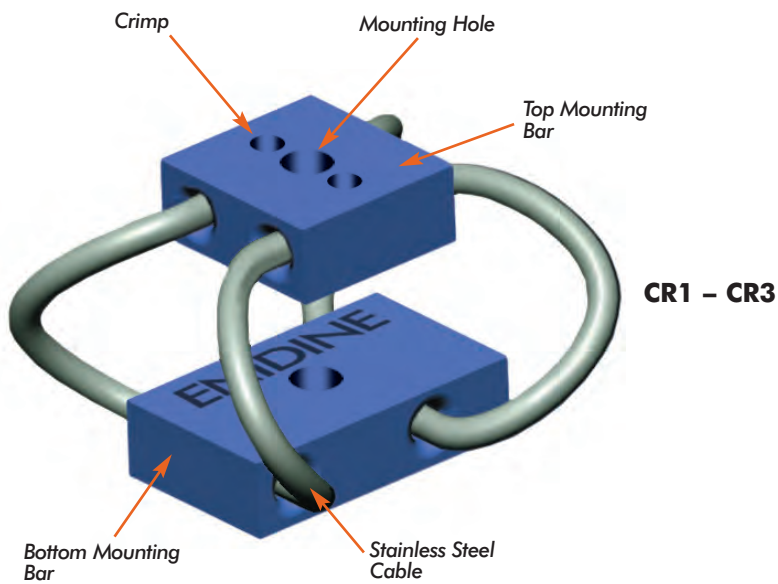
Compact Wire Rope Isolators

For the best in vibration isolation capabilities, choose ITT Enidine's Compact Wire Rope Isolators. Smaller than traditional wire ropes, these unique isolators provide cost-effective, simultaneous shock and vibration attenuation where package space is at a premium.

ITT Enidine Compact Wire Rope Isolators feature an easy, single-point installation, which allows them to be installed in virtually any application. Their small size also permits the isolation of individual system components, making them ideal for use in sensitive equipment and electronics. Just as with our standard ITT Enidine Wire Rope Isolators, ITT Enidine Compact Wire Rope Isolators feature a patented, all-metal design and components that ensure maximum reliability, regardless of temperature or substrate requirement, and that can help meet MILSPECS similar to those of our Wire Rope Isolator series. Please refer to our "Compact Wire Rope Isolator Sizing Information" on pages 37-38 for more information.

If your application is outside the standard Compact Wire Rope Isolator product range, please consult the standard Wire Rope Isolator or HERM portions of this catalog. If a standard solution is still not available, ITT Enidine engineers can design an isolator to suit your specifications.

For further information on ITT Enidine Wire Rope, HERM and Compact Wire Rope Isolator products, technical assistance and pricing, please contact ITT Enidine or your nearest authorized distributor. A list of ITT Enidine distributors can be found by visiting our website at www.enidine.com.



Materials and Finishes:

- Standard:** Wire Rope: 302/304 Stainless Steel
Mount Bars: 6061-T6 Aluminum, Chemical Conversion Coated per MIL-C-5541, Class 1A
Threads: Tapped
- Optional:** Mount Bars: 6061-T6 Aluminum, Anodized per MIL-A-8625, Type II, Class 1
302/304 Stainless Steel per ASTM A276, Passivated
- Special:** Consult ITT Enidine

Isolator Options:

- Mounting:** ITT Enidine offers a full range of mounting combinations of thru-hole, countersunk, and threaded bars. All configurations are available in either Imperial or Metric styles. Add an "M" after the mounting option for Metric. Some models have reduced mounting options available due to limited fastener installation space. Consult ITT Enidine if a preferred mounting configuration is not listed.
- Bellmouth:** The bellmouth feature includes mount bars with radii manufactured into the wire rope hole edges. This option is recommended for high fatigue applications. Compact rope models (CR1 – CR6) include this feature as the standard.

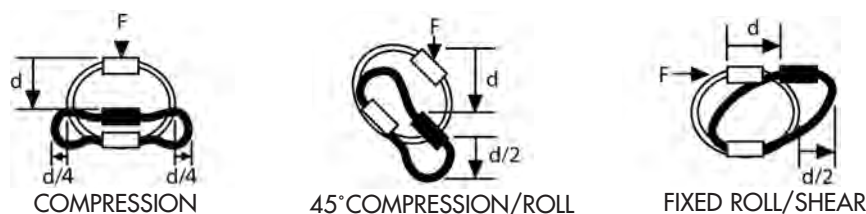
Performance:

Stiffness (Kv or Ks):

Compact wire rope isolators exhibit non-linear stiffness behavior. Small deflections, usually associated with vibration isolation, will have a different spring rate than larger shock deflections. ITT Enidine publishes typical vibration stiffness values (Kv), and average shock stiffness values (Ks) within the catalog. These values can be used with the provided equations listed on Page 38 to predict system performance.

Isolator Axes:

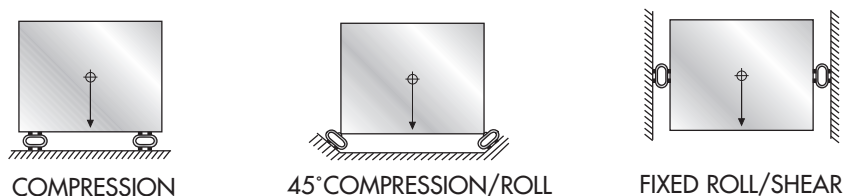
Compact wire rope isolators are multi-axis isolators. The diagram below includes load axis definitions and deflection considerations.



Damping: Typically 5-15%, depending on size and input level. For specific damping considerations, please consult ITT Enidine.

Mounting Orientation:

The diagrams below illustrate typical mounting orientations.

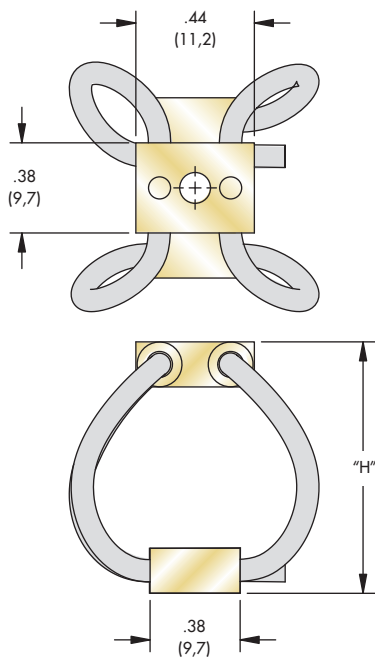


Stabilizers:

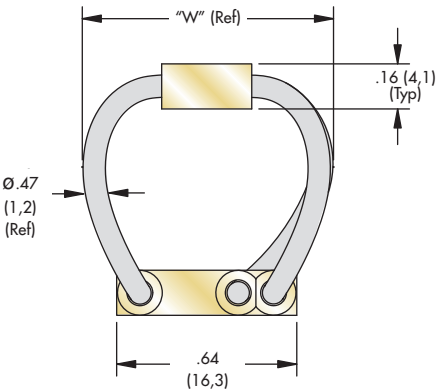
Stabilizers are used to control deflections of tall supported masses. Stabilizers are typically recommended when the height equals 2-times the width or depth dimension. In most applications, the quantity of stabilizers required are half as many as the base isolators, and selected one size softer than the base isolators.

For complete wire rope isolator product sizing please visit www.enidine.com online or feel free to use the data sheet below and send it to ITT Enidine by fax at 716.662.1909 or email to industrialsales@enidine.com.

APPLICATION WORKSHEET - INPUTS IMPERIAL/METRIC		
	IMPERIAL	METRIC
PART I: SYSTEM DATA:		
1. Total Supported Load (W _T):	W _T = _____ lbs.	
	W _T = _____ Kg x 9.81 = _____ N	
2. Number of Isolators (n):	n = _____	
3. Static Load per Isolator (W):	W = $\frac{W_T}{n}$	W = _____ N*
* Assumes a central CG		
4. Load Axis: Compression Shear or Roll 45° Compression/Roll	Load Axis _____	Load Axis _____
PART II: VIBRATION SIZING:		
1. Input Excitation Frequency	(f _i) = _____ Hz (= $\frac{\text{rpm}}{60}$)	
2. System Response Natural Frequency for 80% isolation:	f _n = $\frac{f_i}{3.0}$ = _____ Hz	
3. Maximum Isolator Vibration Stiffness: (K _v)	K _v = $\frac{W (2\pi f_n)^2}{g}$ g = 386 in./sec. ² or 9.81 m/sec. ²	K _v = _____ lbs./in. K _v = _____ N/m
4. Select an isolator by comparing calculated values with technical data for the desired load axis provided in tables for each isolator. a.) Calculated "W" must be less than the isolator's max static load and b.) Isolator's vibration stiffness must be less than the calculated maximum K _v		
PART III: SHOCK SIZING:		
1. Maximum Allowable Transmitted Acceleration:	A _T = _____ G's	
2. Shock Input Velocity:	V = _____ in./sec. V = _____ m/sec.	
Free Fall Impact:	V = $\sqrt{2gh}$ g = 386 in./sec. ² or 9.81 m/sec. ² h = Drop Height (in. or m)	
3. Min. Isolator Response Deflection:	D _{min} = $\frac{V^2}{g(A_T)}$	D _{min} = _____ in. D _{min} = _____ m
4. Maximum Isolator Shock Stiffness:	K _s = $\frac{W(V/D_{min})^2}{g}$	K _s = _____ lbs./in. K _s = _____ N/m
5. Select an isolator by comparing calculated values with technical data for the desired load axis provided in tables for each isolator. a.) Calculated "W" must be less than the isolator's max static load and b.) Calculated D _{min} must be less than the isolator's max deflection Note: Metric deflections are calculated in meters (m) and technical data is in millimeters (mm). and c.) Isolator's shock stiffness must be less than calculated maximum "K _s "		
6. Check actual deflection using "K _s " from technical data to ensure that the isolator's max deflection is not exceeded.	D _{actual} = $\sqrt{\frac{V^2}{K_s(\text{Isolator})g}}$	D _{actual} = _____ in. D _{actual} = _____ m
7. If isolator's max deflection is exceeded, select another isolator and repeat steps 5 and 6.		



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25\text{mm}$)



Size	Height "H" in. (mm)	Width (Ref) "W" in. (mm)	Unit Weight oz. (g)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
CR1-100	0.66 (17)	0.73 (19)	0.11 (3,1)	A, B, C, D, E, S	Ø.130 (Ø3,30)	#4-40 UNC (M3 X 0,5)	82° (90°)
CR1-200	0.75 (19)	0.79 (20)	0.11 (3,1)				
CR1-300	0.90 (23)	0.91 (23)	0.12 (3,4)				
CR1-400	1.04 (26)	1.03 (26)	0.12 (3,4)				

Model Number Ordering Code

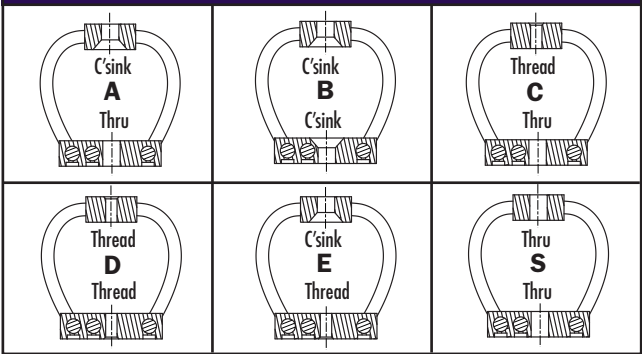
CR1 - 400 - D M

_____ Add "M" for Metric For C'sink and Threaded Options

_____ Mounting Options: See Chart

_____ Isolator Size: See Sizing Table

Mounting Options

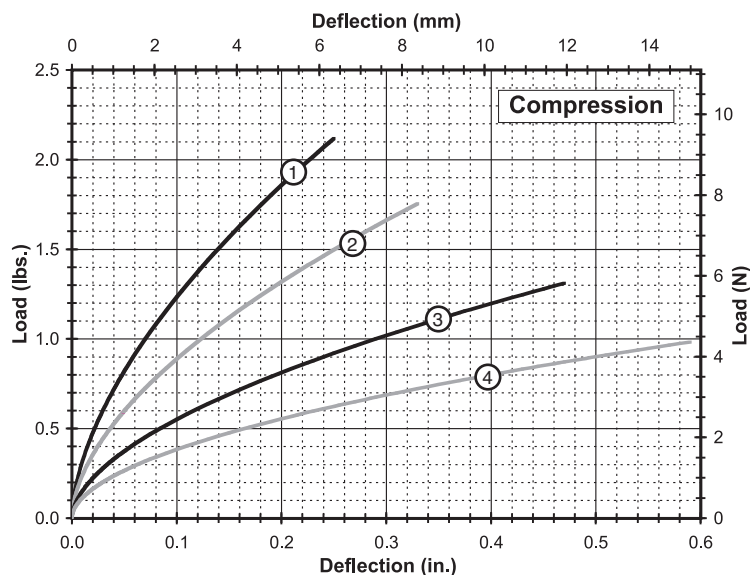


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 37.

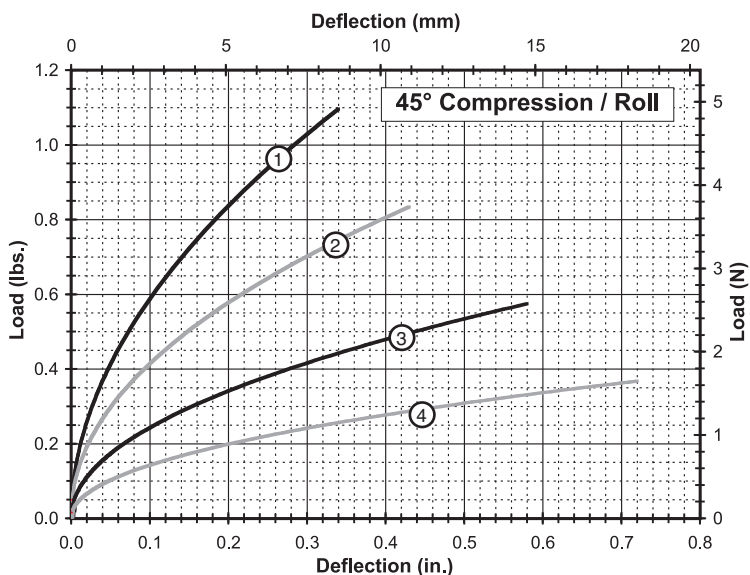
- Maximum recommended torque for tapped aluminum bar is 10 in.-lbs. (1,2 Nm)
- Wire Rope Material: Stranded 300 series stainless steel
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)
- U.S. Patent 6,290,217

Static Load vs. Deflection



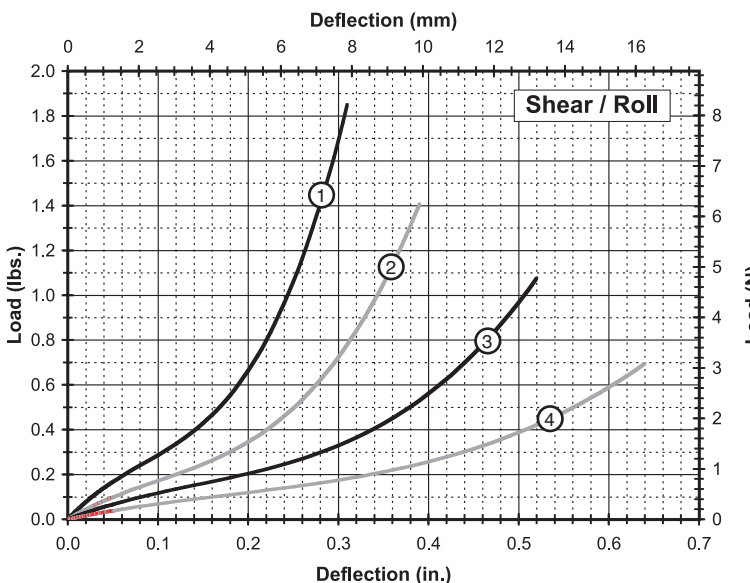
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR1-100	0.75 (3,3)	0.25 (6,4)	22 (3,9)	11 (1,9)
2	CR1-200	0.55 (2,4)	0.33 (8,4)	16 (2,8)	7.0 (1,2)
3	CR1-300	0.40 (1,8)	0.47 (11,9)	10 (1,75)	3.5 (0,61)
4	CR1-400	0.30 (1,3)	0.59 (15,0)	7.5 (1,31)	2.2 (0,39)



45° Compression/Roll

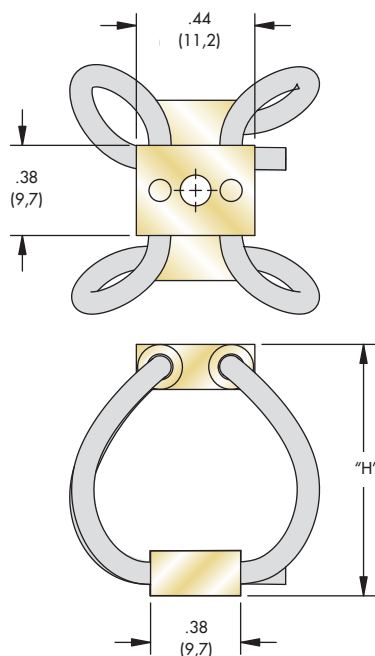
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR1-100	0.35 (1,6)	0.34 (8,6)	12 (2,1)	4.5 (0,79)
2	CR1-200	0.25 (1,1)	0.43 (10,9)	8.5 (1,5)	2.5 (0,44)
3	CR1-300	0.17 (0,76)	0.58 (14,7)	5.0 (0,88)	1.5 (0,26)
4	CR1-400	0.11 (0,49)	0.72 (18,3)	3.0 (0,53)	0.7 (0,12)



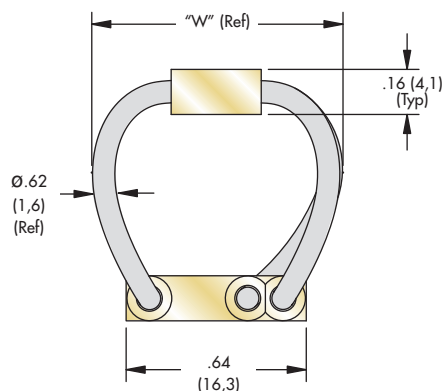
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR1-100	0.25 (1,1)	0.31 (7,9)	4.0 (0,70)	4.0 (0,70)
2	CR1-200	0.20 (0,89)	0.39 (9,9)	2.5 (0,44)	2.5 (0,44)
3	CR1-300	0.16 (0,71)	0.52 (13,2)	1.5 (0,26)	1.5 (0,26)
4	CR1-400	0.12 (0,53)	0.64 (16,3)	0.8 (0,13)	0.8 (0,13)

Note: Do not extrapolate plotted curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)



Size	Height "H" in. (mm)	Width (Ref) "W" in. (mm)	Unit Weight oz. (g)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
CR2-100	0.64 (16)	$\pm .06$ ($\pm 1,52$)	0.13 (3,7)	A, B, C, D, E, S	Ø.130 (Ø3.30)	#4-40 UNC (M3 X 0,5)	82° (90°)
CR2-200	0.75 (19)		0.14 (4,0)				
CR2-300	0.89 (23)		0.15 (4,3)				
CR2-400	1.07 (27)		0.16 (4,5)				

Model Number Ordering Code

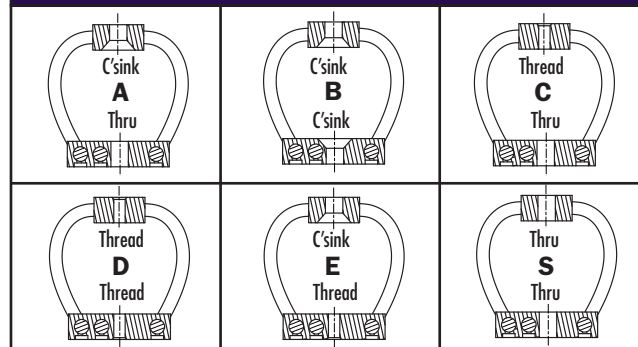
CR2 - 400 - D M

Add "M" for Metric For C'sink and Threaded Options

Mounting Options: See Chart

Isolator Size: See Sizing Table

Mounting Options

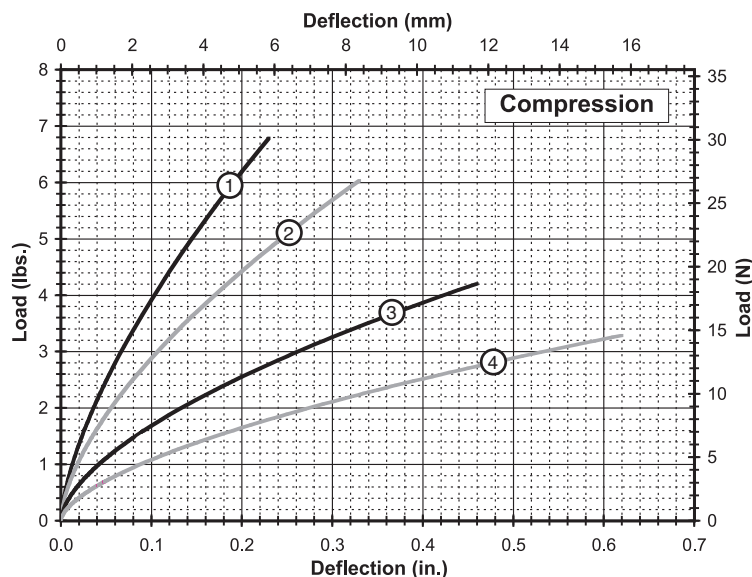


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 37.

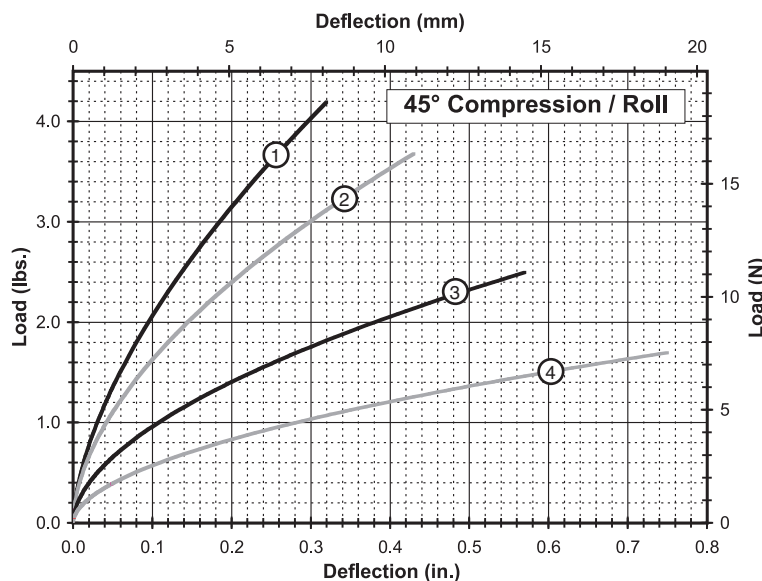
- Maximum recommended torque for tapped aluminum bar is 10 in.-lbs. (1,2 Nm)
- Wire Rope Material: Stranded 300 series stainless steel
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)
- U.S. Patent 6,290,217

Static Load vs. Deflection



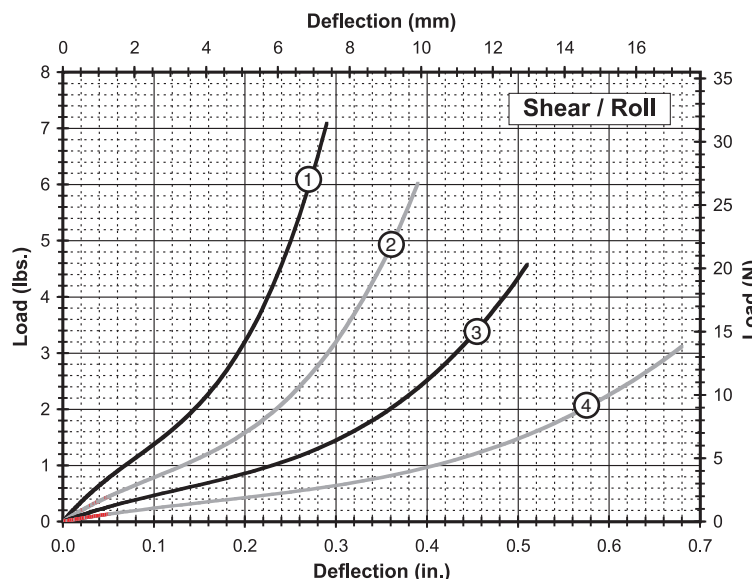
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR2-100	2.6 (12)	0.23 (5,8)	65 (11)	35 (6,1)
2	CR2-200	2.1 (9,3)	0.33 (8,4)	50 (8,8)	23 (4,0)
3	CR2-300	1.5 (6,7)	0.46 (11,7)	30 (5,3)	11 (1,9)
4	CR2-400	1.1 (4,9)	0.62 (15,7)	20 (3,5)	7 (1,2)



45° Compression / Roll

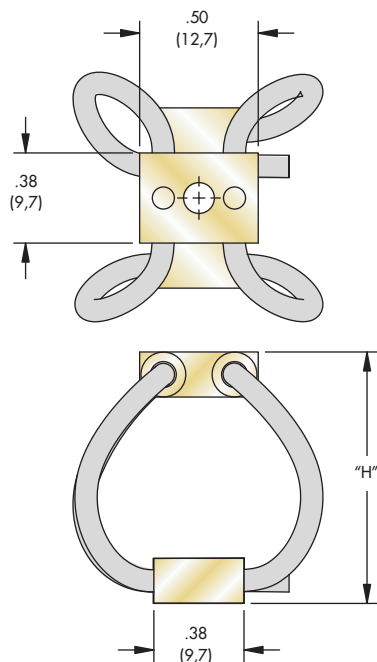
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR2-100	1.3 (5,8)	0.32 (8,1)	35 (6,1)	16 (2,8)
2	CR2-200	1.1 (4,9)	0.43 (10,9)	30 (5,3)	11 (1,9)
3	CR2-300	0.75 (3,3)	0.57 (14,5)	18 (3,2)	6 (1,0)
4	CR2-400	0.50 (2,2)	0.75 (19,1)	11 (1,9)	3 (0,51)



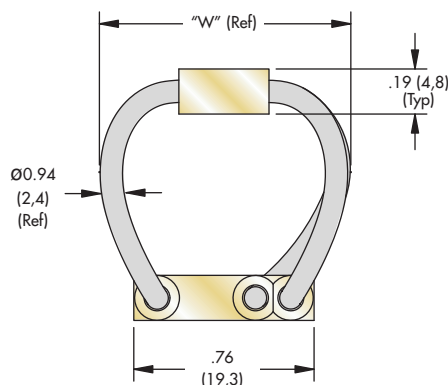
Shear / Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR2-100	1.3 (5,6)	0.29 (7,4)	17 (3,0)	17 (3,0)
2	CR2-200	0.90 (4,0)	0.39 (9,9)	10 (1,8)	10 (1,8)
3	CR2-300	0.65 (2,9)	0.51 (13,0)	6 (1,1)	6 (1,1)
4	CR2-400	0.45 (2,0)	0.68 (17,3)	3 (0,53)	3 (0,53)

Note: Do not extrapolate plotted curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25\text{mm}$)



Size	Height "H" in. (mm)	Width (Ref) "W" in. (mm)	Unit Weight oz. (g)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
CR3-100	0.75 (19)	$\pm .06$ ($\pm 1,52$)	0.88 (22)	A, B, C, D, E, S	Ø.130 (Ø3,30)	#4-40 UNC (M3 X 0,5)	82° (90°)
CR3-200	0.90 (23)		0.95 (24)				
CR3-300	1.06 (27)		1.06 (27)				
CR3-400	1.28 (33)		1.20 (30)				

Model Number Ordering Code

CR3 - 400 - D M

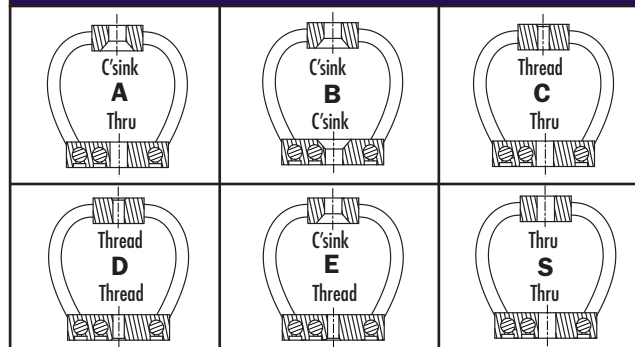
CR3 - Isolator Size: See Sizing Table

400 - Mounting Options: See Chart

D - Add "M" for Metric For C'sink and Threaded Options

M -

Mounting Options

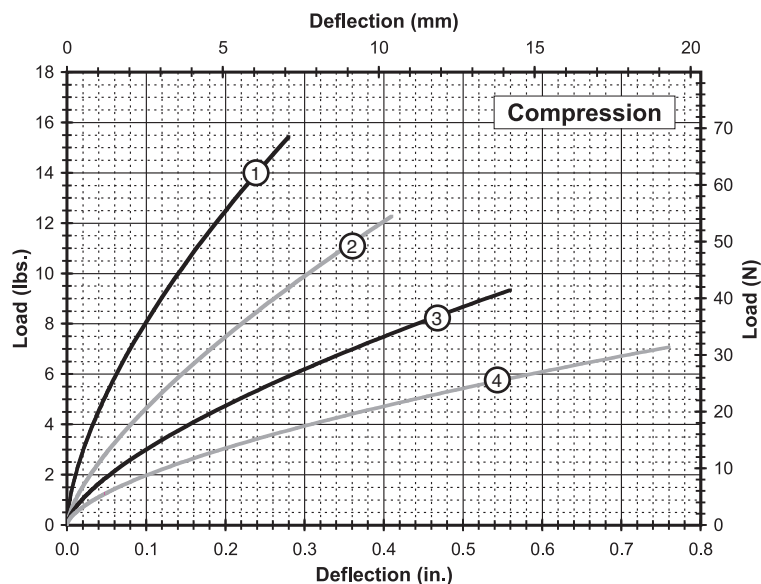


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 37.

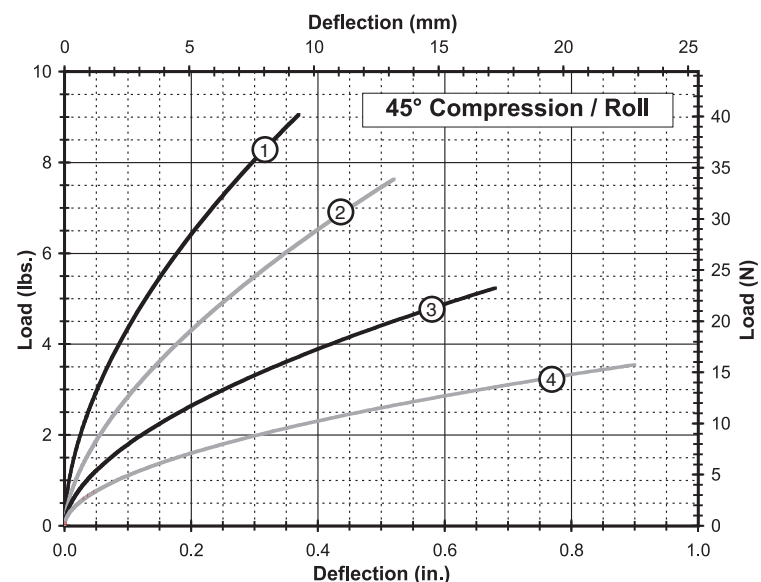
- Maximum recommended torque for tapped aluminum bar is 13 in.-lbs. (1,5 Nm)
- Wire Rope Material: Stranded 300 series stainless steel
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)
- U.S. Patent 6,290,217

Static Load vs. Deflection



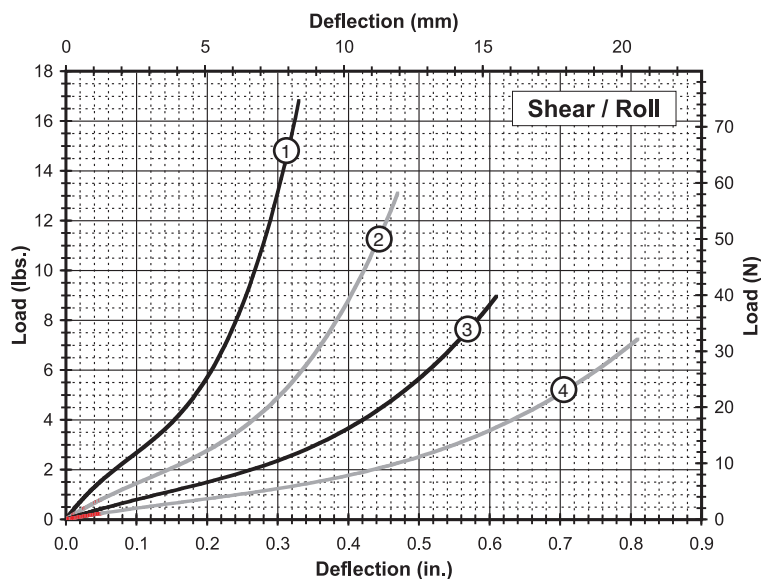
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR3-100	6.5 (29)	0.28 (7,1)	135 (24)	68 (12)
2	CR3-200	5.0 (22)	0.41 (10,4)	70 (12)	35 (6,1)
3	CR3-300	4.0 (18)	0.56 (14,2)	48 (8,4)	20 (3,5)
4	CR3-400	2.5 (11)	0.76 (19,3)	33 (5,8)	11 (1,9)



45° Compression/Roll

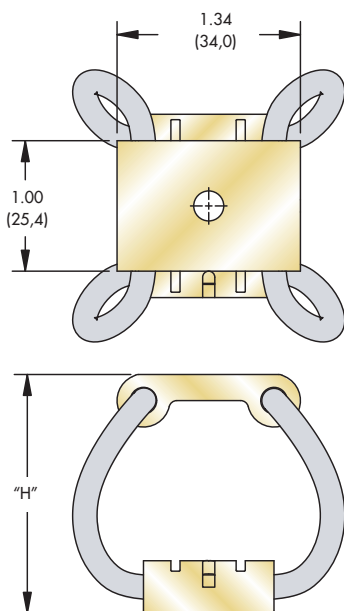
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR3-100	2.7 (12)	0.37 (9,4)	80 (14)	30 (5,3)
2	CR3-200	2.3 (10)	0.52 (13,2)	50 (8,8)	18 (3,2)
3	CR3-300	1.5 (6,7)	0.68 (17,3)	33 (5,8)	10 (1,8)
4	CR3-400	1.0 (4,4)	0.90 (22,9)	20 (3,5)	5 (0,91)



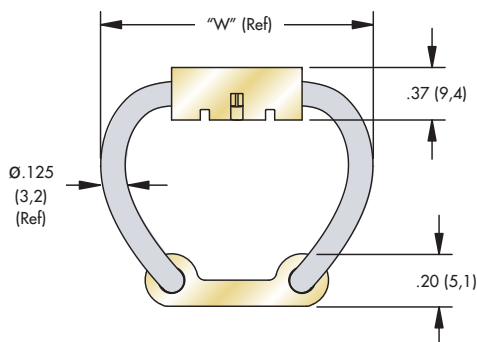
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR3-100	2.7 (12)	0.33 (8,4)	35 (6,1)	35 (6,1)
2	CR3-200	1.9 (8,5)	0.47 (11,9)	20 (3,5)	20 (3,5)
3	CR3-300	1.4 (6,2)	0.61 (15,5)	10 (1,8)	10 (1,8)
4	CR3-400	1.0 (4,4)	0.81 (20,6)	6 (1,1)	6 (1,1)

Note: Do not extrapolate plotted curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)



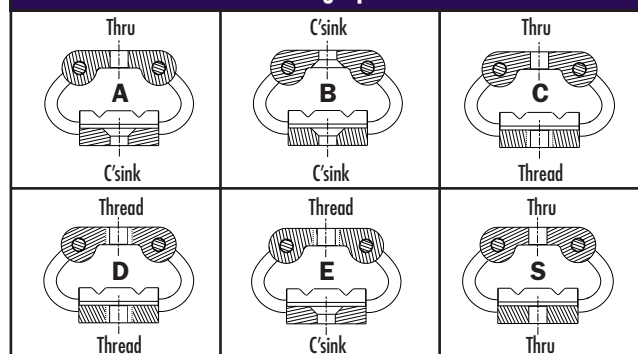
Size	Height "H" in. (mm)	Width (Ref) "W" in. (mm)	Unit Weight oz. (g)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
CR4-100	1.66 (42)	1.87 (47)	1.4 (40)	A, B, C, D, E, S	$\varnothing .230$ ($\varnothing 7,00$)	#10-32 UNF (M6 X 1,0)	82° (90°)
CR4-200	2.10 (53)	2.12 (54)	1.4 (40)				
CR4-300	2.37 (60)	2.34 (59)	1.5 (43)				
CR4-400	2.96 (75)	2.67 (68)	1.7 (48)				

Model Number Ordering Code

CR4 - 400 - D M

- Add "M" for Metric All Mounting Options
- Mounting Options: See Chart
- Isolator Size: See Sizing Table

Mounting Options

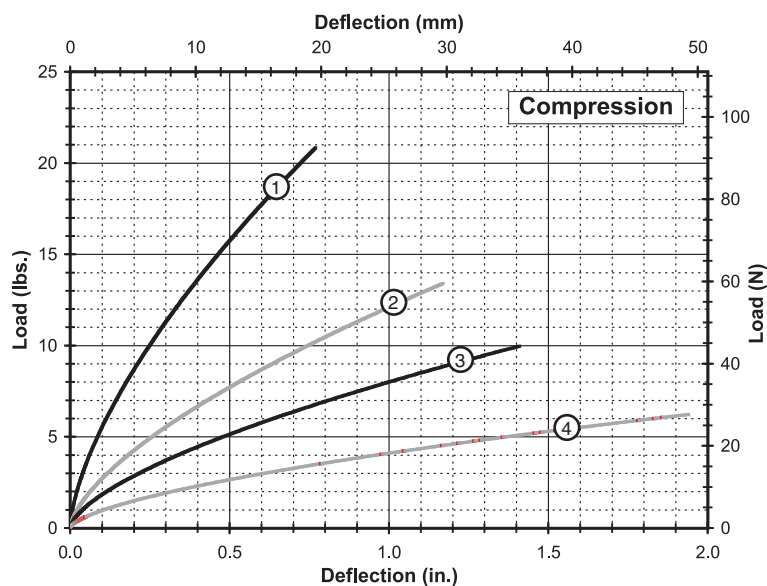


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 37.

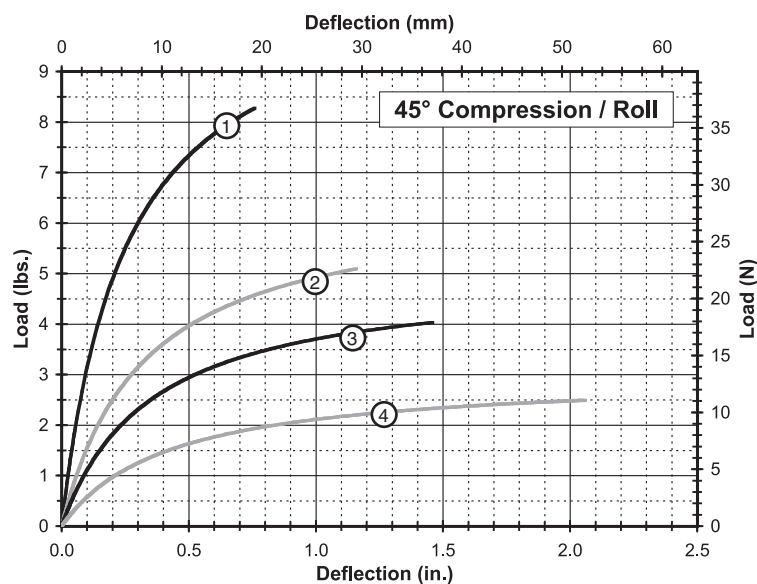
- Maximum recommended torque for tapped aluminum bar is 40 in.-lbs. (7,5 Nm)
- Wire Rope Material: Stranded 300 series stainless steel
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)
- U.S. Patent 6,244,579

Static Load vs. Deflection



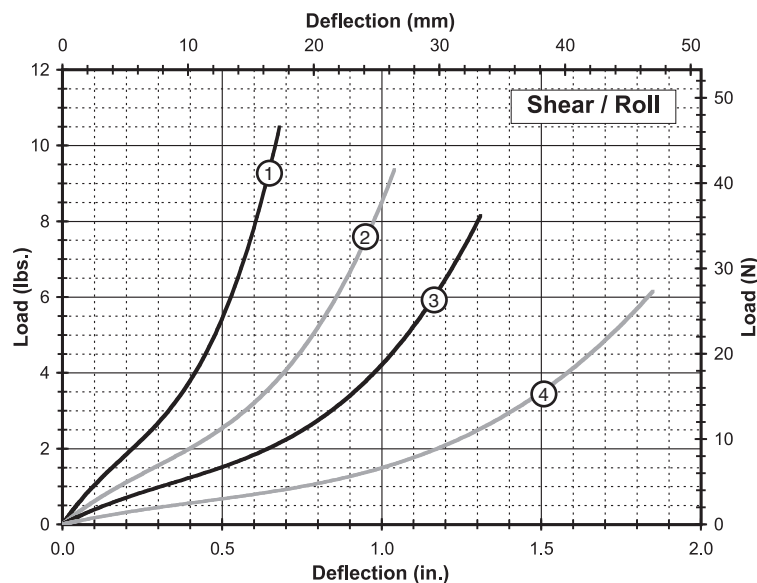
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR4-100	5.5 (24)	0.77 (19,6)	70 (12)	33 (5,8)
2	CR4-200	4.0 (18)	1.17 (29,7)	35 (6,0)	14 (2,5)
3	CR4-300	3.0 (13)	1.41 (35,8)	25 (4,4)	9 (1,6)
4	CR4-400	1.5 (6,7)	1.94 (49,3)	12 (2,2)	4 (0,70)



45° Compression/Roll

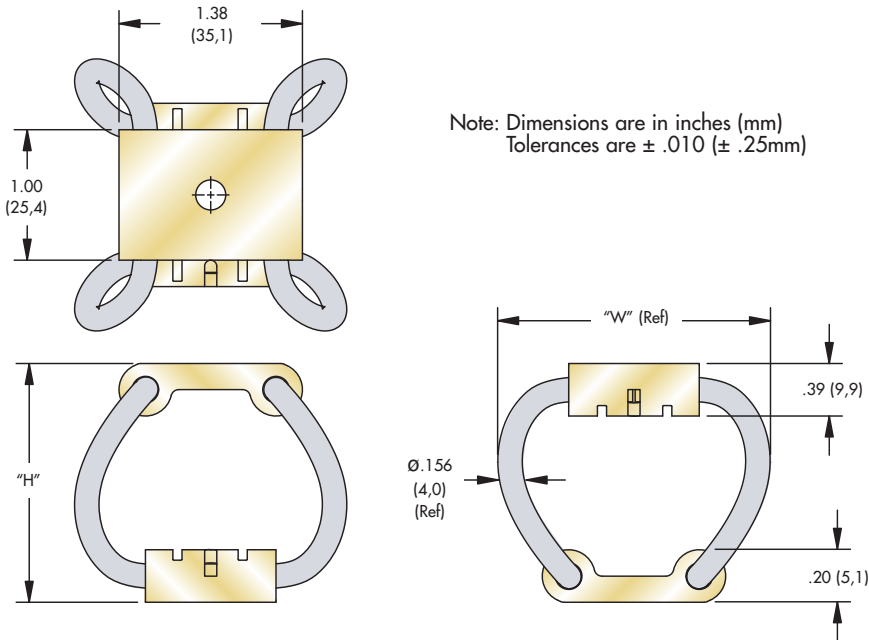
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR4-100	2.5 (11)	0.76 (19,3)	37 (6,4)	16 (2,8)
2	CR4-200	1.5 (6,7)	1.16 (29,5)	18 (3,1)	6 (1,1)
3	CR4-300	1.2 (5,3)	1.46 (37,1)	13 (2,2)	4 (0,70)
4	CR4-400	0.80 (3,6)	2.06 (52,3)	6 (1,1)	2 (0,35)



Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR4-100	1.9 (8,5)	0.68 (17,3)	11 (1,9)	11 (1,9)
2	CR4-200	1.6 (7,1)	1.04 (26,4)	6 (1,1)	6 (1,1)
3	CR4-300	1.2 (5,3)	1.31 (33,3)	4 (0,70)	4 (0,70)
4	CR4-400	0.75 (3,3)	1.85 (47,0)	2 (0,35)	2 (0,35)

Note: Do not extrapolate plotted curves.



Size	Height "H" in. (mm)	Width (Ref) "W" in. (mm)	Unit Weight oz. (g)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
CR5-100	1.60 (41)	1.89 (48)	1.6 (45)	A, B, C, D, E, S	Ø.230 (Ø7,00)	#10-32 UNF (M6 X 1,0)	82° (90°)
CR5-200	2.09 (53)	2.13 (54)	1.7 (48)				
CR5-300	2.36 (60)	2.32 (59)	1.8 (51)				
CR5-400	2.99 (76)	2.64 (67)	2.0 (57)				

Model Number Ordering Code

CR5 - 400 - D M

Add "M" for Metric

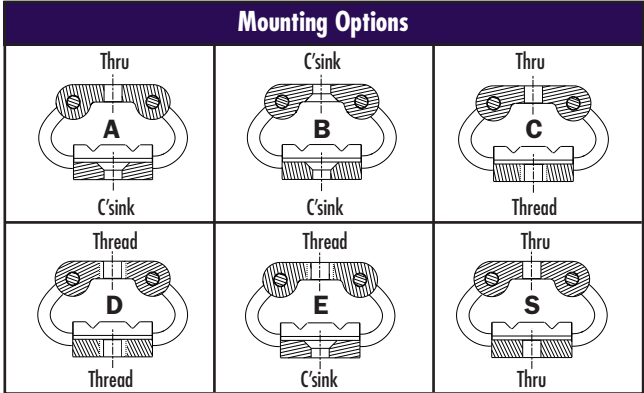
All Mounting Options

Mounting Options:

See Chart

Isolator Size:

See Sizing Table

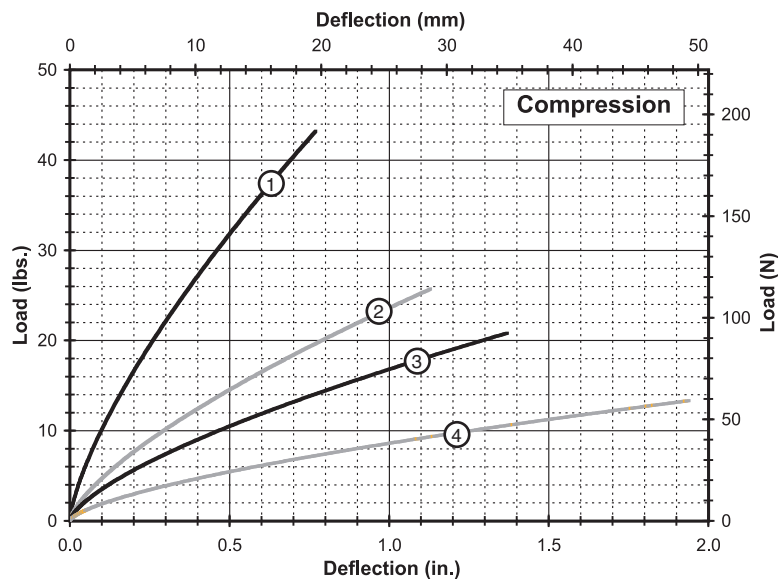


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 37.

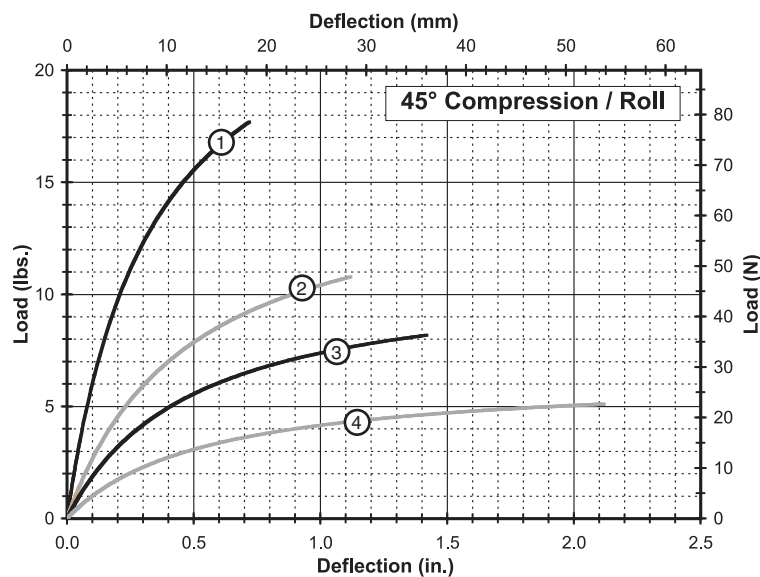
- Maximum recommended torque for tapped aluminum bar is 40 in.-lbs. (7,5 Nm)
- Wire Rope Material: Stranded 300 series stainless steel
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)
- U.S. Patent 6,244,579

Static Load vs. Deflection



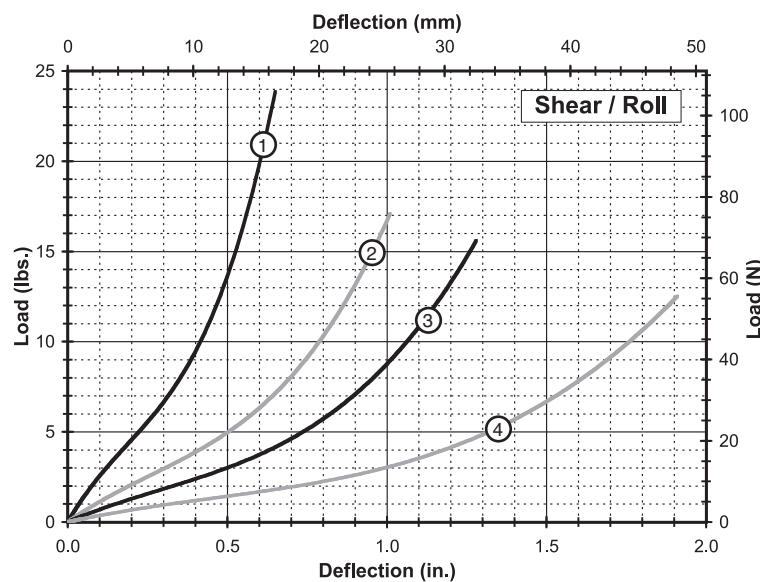
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR5-100	18 (80)	0.77 (19,6)	125 (22)	65 (11)
2	CR5-200	8.5 (38)	1.13 (28,7)	60 (11)	25 (4,4)
3	CR5-300	6.0 (27)	1.37 (34,8)	45 (7,9)	18 (3,2)
4	CR5-400	3.5 (16)	1.94 (49,3)	25 (4,4)	8 (1,4)



45° Compression/Roll

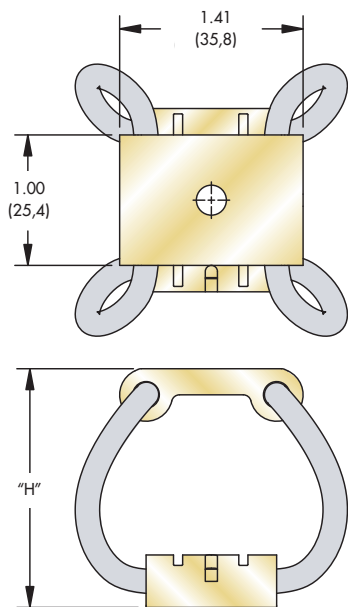
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR5-100	5.5 (24)	0.72 (18,3)	70 (12)	35 (6,1)
2	CR5-200	3.0 (13)	1.12 (28,4)	30 (5,3)	13 (2,3)
3	CR5-300	2.5 (11)	1.42 (36,1)	20 (3,6)	8 (1,4)
4	CR5-400	1.5 (6,7)	2.12 (53,8)	11 (1,9)	4 (0,70)



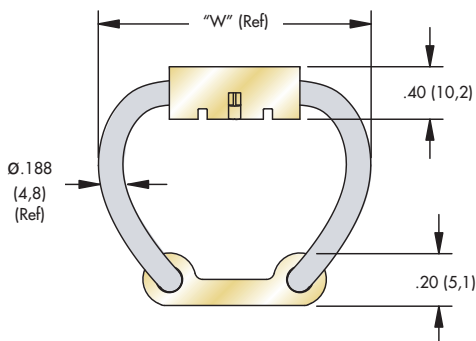
Shear/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR5-100	4.5 (20)	0.65 (16,5)	25 (4,4)	25 (4,4)
2	CR5-200	3.0 (13)	1.01 (25,7)	12 (2,1)	12 (2,1)
3	CR5-300	2.5 (11)	1.28 (32,5)	8 (1,4)	8 (1,4)
4	CR5-400	1.5 (6,7)	1.91 (48,5)	4 (0,70)	4 (0,70)

Note: Do not extrapolate plotted curves.



Note: Dimensions are in inches (mm)
Tolerances are $\pm .010$ ($\pm .25$ mm)



Size	Height "H" in. (mm)	Width (Ref) "W" in. (mm)	Unit Weight oz. (g)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
CR6-100	1.83 (47)	2.11 (54)	2.0 (57)	A, B, C, D, E, S	Ø.230 (Ø7,00)	#10-32 UNF (M6 X 1,0)	82° (90°)
CR6-200	2.15 (55)	2.31 (59)	2.2 (62)				
CR6-300	2.51 (64)	2.50 (64)	2.3 (65)				
CR6-400	3.09 (79)	2.86 (73)	2.6 (74)				

Model Number Ordering Code

CR6 - 400 - D M		
	Add "M" for Metric	All Mounting Options
	Mounting Options:	See Chart
	Isolator Size:	See Sizing Table

Mounting Options

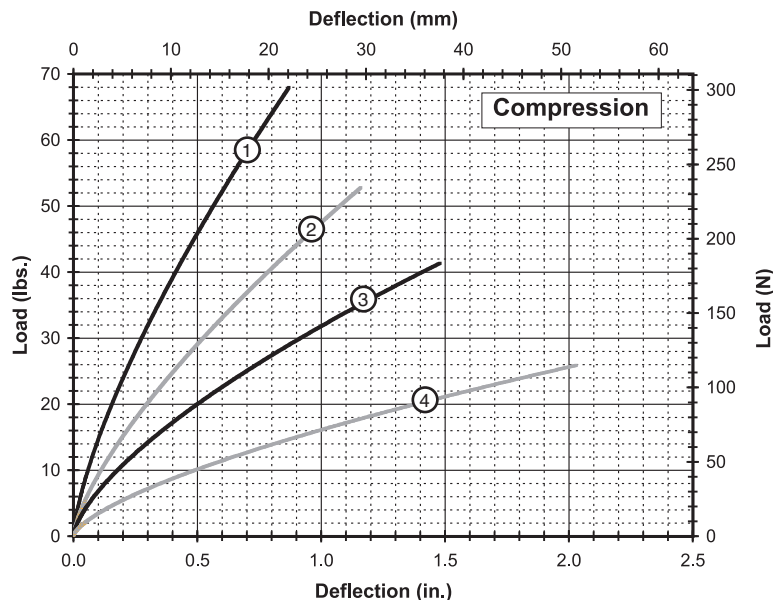
Thru A C'sink	C'sink B C'sink	Thru C Thread
Thread D Thread	Thread E C'sink	Thru S Thru

Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 37.

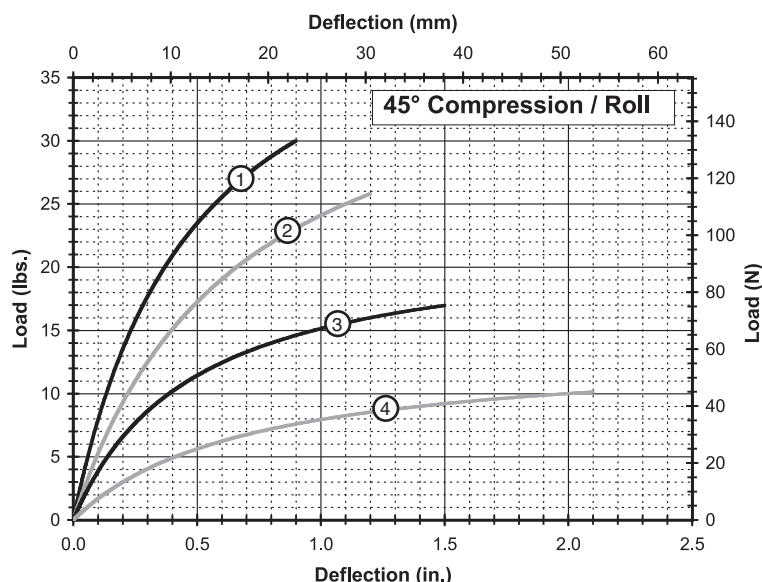
- Maximum recommended torque for tapped aluminum bar is 40 in.-lbs. (7,5 Nm)
- Wire Rope Material: Stranded 300 series stainless steel
- Operating Temperature Range: -150°F to 500°F (-100°C to 260°C)
- U.S. Patent 6,244,579

Static Load vs. Deflection



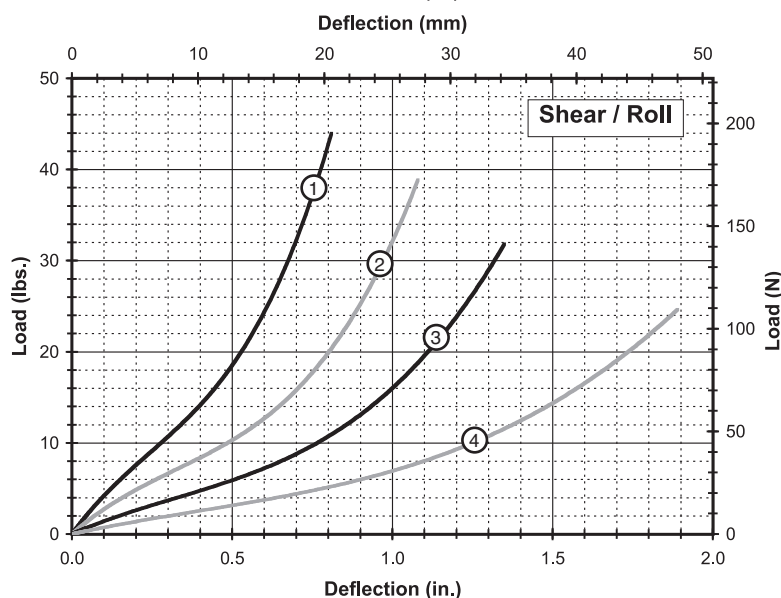
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR6-100	32 (142)	0.87 (22,1)	180 (32)	90 (16)
2	CR6-200	21 (93)	1.16 (29,5)	115 (20)	55 (9,6)
3	CR6-300	15 (67)	1.48 (37,6)	85 (15)	30 (5,3)
4	CR6-400	8.0 (36)	2.03 (51,6)	45 (7,9)	15 (2,6)



45° Compression/Roll

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR6-100	9.0 (40)	0.9 (22,9)	90 (16)	45 (7,9)
2	CR6-200	7.5 (33)	1.2 (30,5)	55 (9,6)	30 (5,3)
3	CR6-300	5.0 (22)	1.5 (38,1)	45 (7,9)	16 (2,8)
4	CR6-400	3.0 (13)	2.1 (53,3)	20 (3,5)	7 (1,2)



Shear/Roll

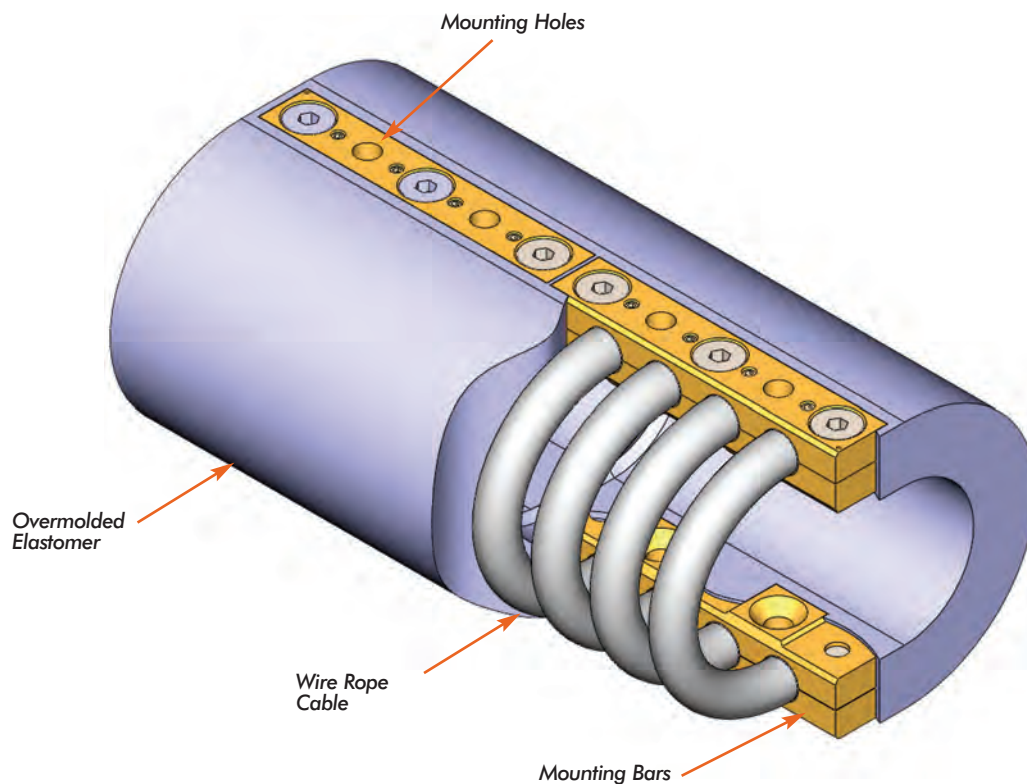
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	CR6-100	9.0 (40)	0.81 (20,6)	45 (7,9)	45 (7,9)
2	CR6-200	7.0 (31)	1.08 (27,4)	25 (4,4)	25 (4,4)
3	CR6-300	5.0 (22)	1.35 (34,3)	15 (2,6)	15 (2,6)
4	CR6-400	3.5 (16)	1.89 (48,0)	9 (1,6)	9 (1,6)

Note: Do not extrapolate plotted curves.



The HERM isolator incorporates the use of a traditional ITT Enidine helical wire rope isolator encased in a proprietary elastomeric compound. The stainless steel cable of the mount provides for a rugged construction, while the elastomer provides additional damping and stiffness. This unique design results in a fail safe mount with a higher stiffness and energy absorption capacity.

The mount is readily scalable and performance easily tuned by varying the wire diameter, loop size, number of loops and elastomeric properties. The HERM isolator has proven particularly strong in low natural frequency "soft deck" applications of 12-16 Hz, reducing output G's to below 15G's. Its sealed nature of construction also provides for easy NBC washdown. Since the mounting size of the HERM isolator is virtually identical to that of standard wire rope isolators used in many shipboard applications, equipment upgrades are both simple and seamless with drop-in replacement capability.

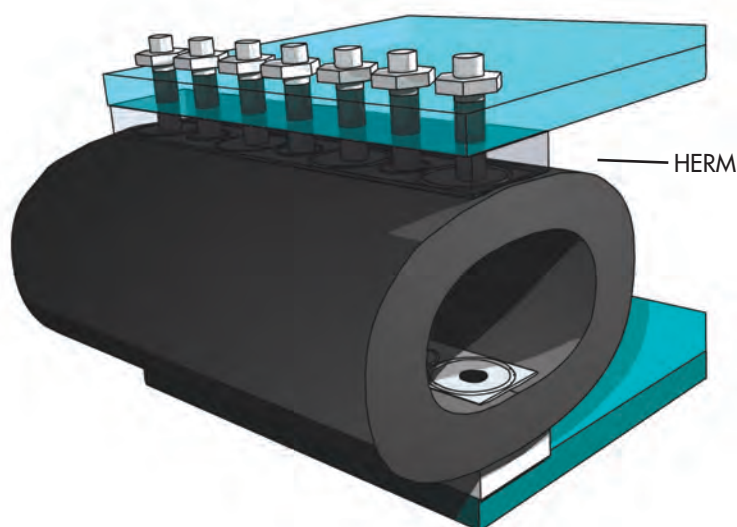


HERM Features:

- Lowest profile design for a 14 Hz deck solution
- A variety of material combinations available
- Mounting identical to traditional Wire Rope Isolators
- Readily "tunable" to meet a wide range of natural frequencies
- Greater load carrying capability

HERM Benefits:

- Easy retrofit on fielded equipment
- Fewer mounts required to support a given load
- Smaller "footprint" than other mounts
- Compatible with NBC wash down requirements
- Improved noise attenuation compared to standard Wire Rope Isolators



Materials and Finishes:

Standard: Elastomer: Proprietary ITT Enidine Compound
 Wire Rope: 302/304 Stainless Steel
 Mount Bars: 6061-T6 Aluminum, Chemical Conversion Coated per MIL-C-5541, Class 1A
 Hardware: Alloy Steel per ASTM F835, Zinc Plated (HR16, HR20, HR28 and HR40)

Optional: Mount Bars: 6061-T6 Aluminum, Anodized per MIL-A-8625, Type II, Class 1
 302/304 Stainless Steel per ASTM A276, Passivated
 Hardware: 302/304 Stainless Steel (when stainless steel bars are specified)

Special: Consult ITT Enidine

Isolator Options:

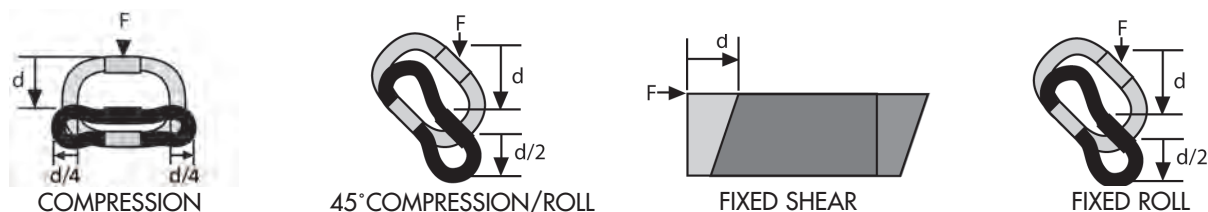
Mounting: ITT Enidine offers various mounting combinations of thru-hole, countersunk, and threaded bars depending upon the HERM model selected.
 Consult ITT Enidine if a preferred mounting configuration is not listed.

Performance:**Stiffness (Kv or Ks):**

HERM's exhibit non-linear stiffness behavior. Small deflections, usually associated with vibration isolation, will have a different spring rate than larger shock deflections. ITT Enidine publishes typical vibration stiffness values (Kv), and average shock stiffness values (Ks) within the catalog. These values can be used with the provided equations listed on Page 54 to predict system performance.

Isolator Axes:

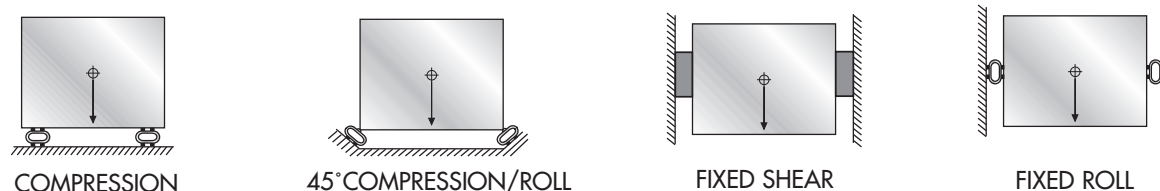
HERM are multi-axis isolators. The diagram below includes load axis definitions and deflection considerations.



Damping: Typically 15-25%, depending on size and input level. For specific damping considerations, please consult Enidine.

Mounting Orientation:

The diagrams below illustrate typical mounting orientations.

**Stabilizers:**

Stabilizers are used to control deflections of tall supported masses. Stabilizers are typically recommended when the height equals 2-times the width or depth dimension.

For complete wire rope isolator product sizing please visit www.enisize.com online or feel free to use the data sheet below and send it to ITT Enidine by fax at 716.662.1909 or email to industrialsales@enidine.com.

APPLICATION WORKSHEET - INPUTS IMPERIAL/METRIC

PART I: SYSTEM DATA:

- Total Supported Load (W_T):
 $W_T = \text{_____ lbs.}$
 $W_T = \text{_____ Kg} \times 9.81 = \text{_____ N}$
- Number of Isolators (n):
 $n = \text{_____}$
- Static Load per Isolator (W):
 $W = \frac{W_T}{n}$
* Assumes a central CG
- Load Axis: Compression
 Shear or Roll
 45° Compression/Roll

W = _____ lbs.*

W = _____ N*

Load Axis

Load Axis

PART II: VIBRATION SIZING:

- Input Excitation Frequency
 $(f_i) = \text{_____ Hz} \left(= \frac{\text{rpm}}{60} \right)$
- System Response Natural Frequency for 80% isolation:
 $f_n = \frac{f_i}{3.0} = \text{_____ Hz}$
- Maximum Isolator Vibration Stiffness: (K_v)
 $K_v = \frac{W (2\pi f_n)^2}{g}$
 $g = 386 \text{ in./sec}^2 \text{ or } 9.81 \text{ m/sec}^2$
- Select an isolator by comparing calculated values with technical data for the desired load axis provided in tables for each isolator.
 a.) Calculated "W" must be less than the isolator's max static load
 and
 b.) Isolator's vibration stiffness must be less than the calculated maximum K_v

K_v = _____ lbs./in.K_v = _____ N/m

PART III: SHOCK SIZING:

- Maximum Allowable Transmitted Acceleration:
 $A_T = \text{_____ G's}$
- Shock Input Velocity:
 $V = \text{_____ in./sec.}$
 $V = \text{_____ m/sec.}$
 Free Fall Impact:
 $V = \sqrt{2gh}$
 $g = 386 \text{ in./sec.}^2 \text{ or } 9.81 \text{ m/sec.}^2$
 $h = \text{Drop Height (in. or m)}$

- Min. Isolator Response Deflection:
 $D_{min} = \frac{V^2}{g(A_T)}$

D_{min} = _____ in.D_{min} = _____ m

- Maximum Isolator Shock Stiffness:
 $K_s = \frac{W(V/D_{min})^2}{g}$

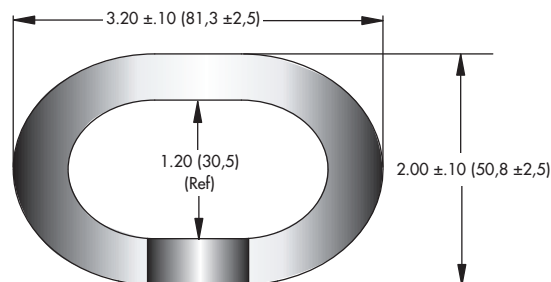
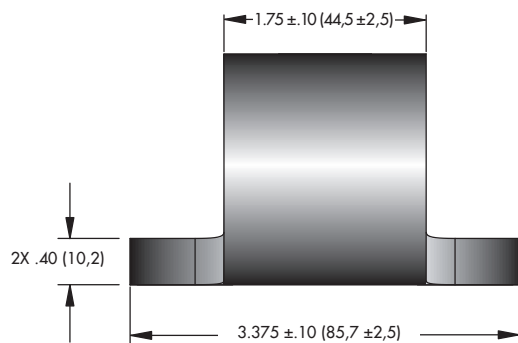
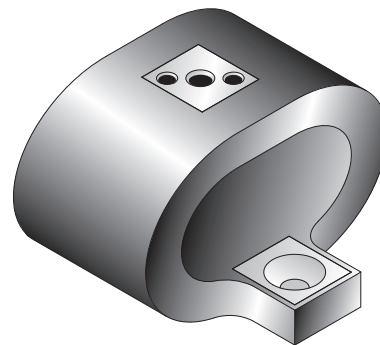
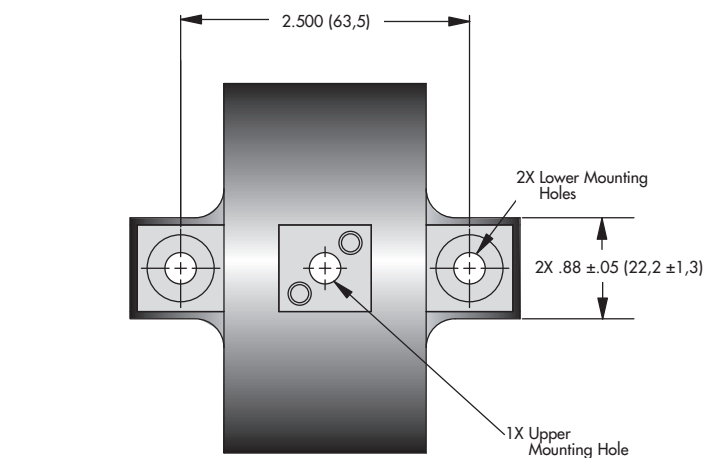
K_s = _____ lbs./in.K_s = _____ N/m

- Select an isolator by comparing calculated values with technical data for the desired load axis provided in tables for each isolator.
 a.) Calculated "W" must be less than the isolator's max static load
 and
 b.) Calculated D_{min} must be less than the isolator's max deflection
 Note: Metric deflections are calculated in meters (m) and technical data is in millimeters (mm).
 and
 c.) Isolator's shock stiffness must be less than calculated maximum "K_s"

- Check actual deflection using "K_s" from technical data to ensure that the isolator's max deflection is not exceeded.
 $D_{actual} = \sqrt{\frac{V}{K_s(\text{isolator})g}}$

D_{actual} = _____ in.D_{actual} = _____ m

- If isolator's max deflection is exceeded, select another isolator and repeat steps 5 and 6.



Note: Dimensions are in inches (mm) Tolerances are ± .010 (± .25mm)

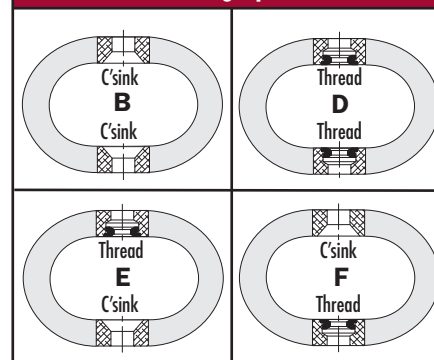
Size	Unit Weight lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
HR6-600	0.4 (0,2)	B, D, E, F	Ø.272 (Ø6,9)	#1/4-20 UNC (M6 X 1,0)	82° (90°)
HR6-400	0.4 (0,2)				
HR6-200	0.4 (0,2)				

Model Number Ordering Code

HR6 - 200 - B L M

- Add "M" for Metric All Mounting Options
- Threaded Hole Options: [L] - Helical, Locking, Dry Film Lubricated
[H] - Helical, Free Running
- Mounting Options: See Chart
- Isolator Model: See Sizing Table

Mounting Options

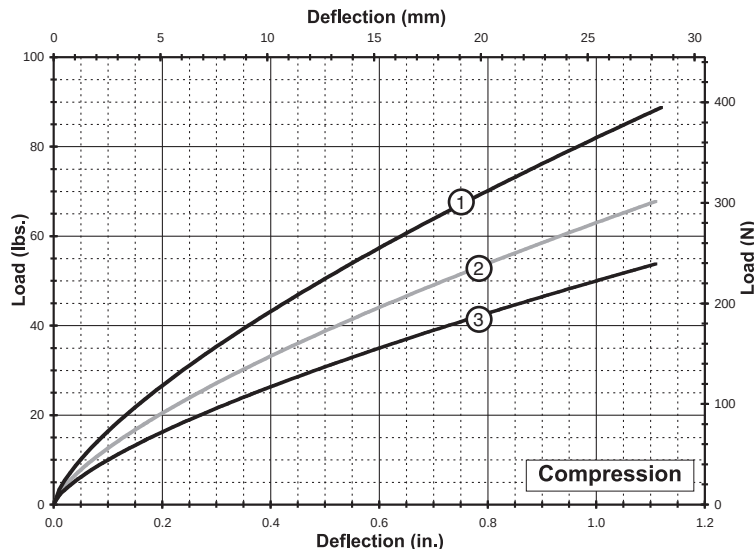


Wire Rope Special Options

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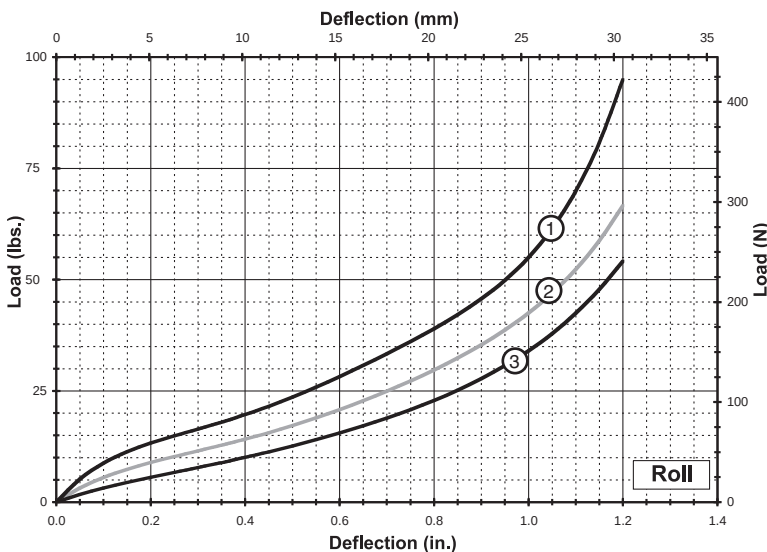
- Meets environmental requirements of MIL-M-17185A

Static Load vs. Deflection



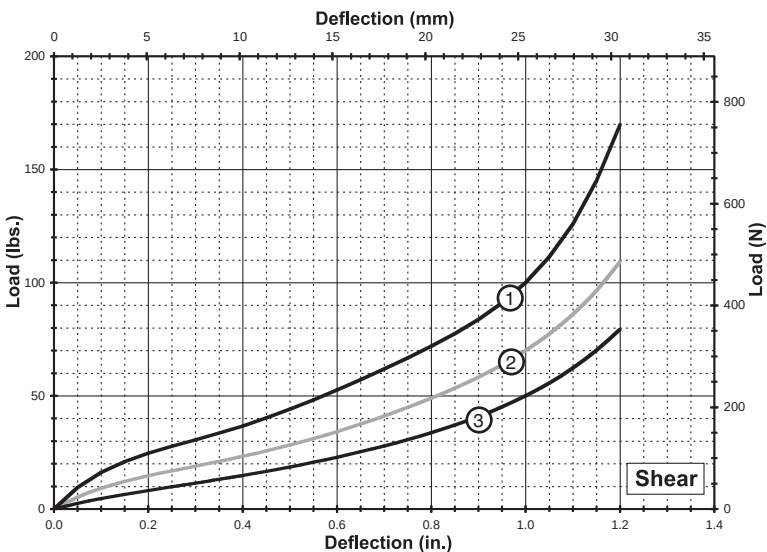
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR6-600	24 (107)	1.12 (28,4)	215 (38)	140 (25)
2	HR6-400	18 (80)	1.12 (28,4)	165 (29)	110 (19)
3	HR6-200	14 (62)	1.12 (28,4)	130 (23)	85 (15)



Roll

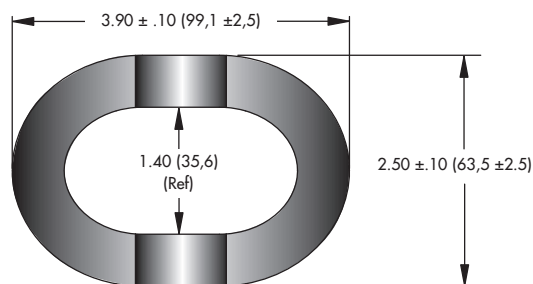
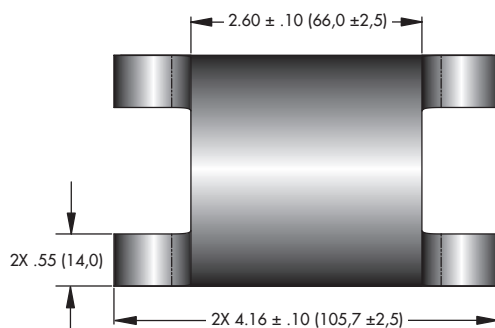
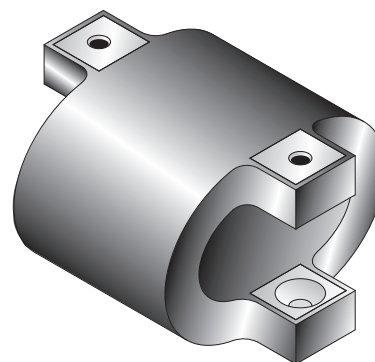
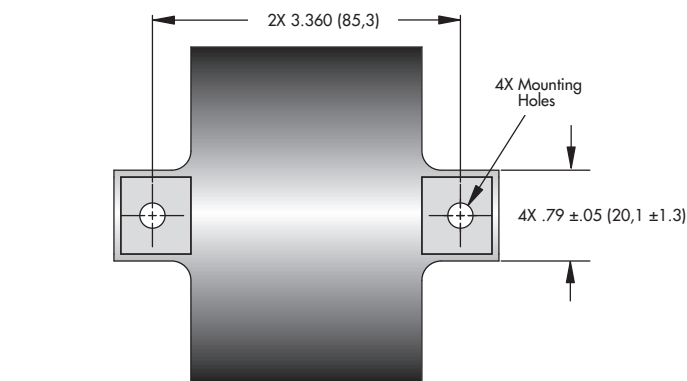
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR6-600	18 (80)	1.20 (30,5)	115 (20)	83 (15)
2	HR6-400	13 (58)	1.20 (30,5)	73 (13)	63 (11)
3	HR6-200	9 (40)	1.20 (30,5)	40 (7)	48 (9)



Shear

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR6-600	34 (151)	1.20 (30,5)	210 (37)	150 (26)
2	HR6-400	20 (89)	1.20 (30,5)	120 (21)	100 (18)
3	HR6-200	13 (58)	1.20 (30,5)	60 (11)	70 (12)

Note: Do not extrapolate plotted curves.



Note: Dimensions are in inches (mm) Tolerances are $\pm .010$ ($\pm .25\text{mm}$)

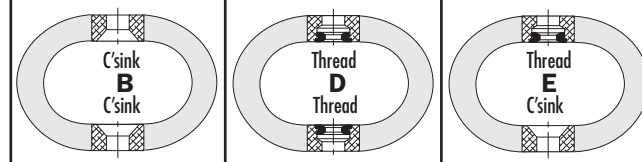
Size	Unit Weight lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
HR8-600	0.8 (0,4)	B, D, E	$\emptyset.272 \pm.005$ (6,9 $\pm 0,13$)	#1/4-20 UNC (M6 X 1,0)	82° (90°)
HR8-400	0.8 (0,4)				
HR8-200	0.8 (0,4)				

Model Number Ordering Code

HR8 - 200 - B L M

- Add "M" for Metric All Mounting Options
- Threaded Hole Options: [L] - Helical, Locking, Dry Film Lubricated
[H] - Helical, Free Running
- Mounting Options: See Chart
- Isolator Model: See Sizing Table

Mounting Options



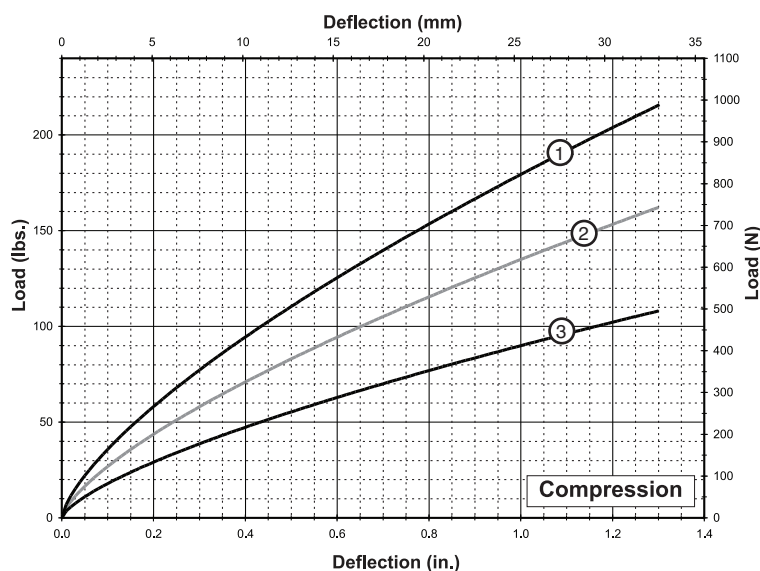
- Meets environmental requirements of MIL-M-17185A

Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 53.

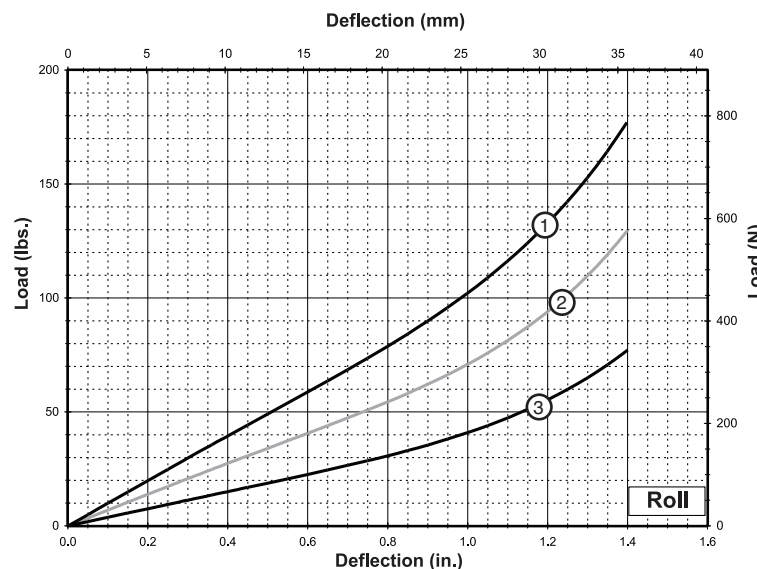
Technical Data

Static Load vs. Deflection



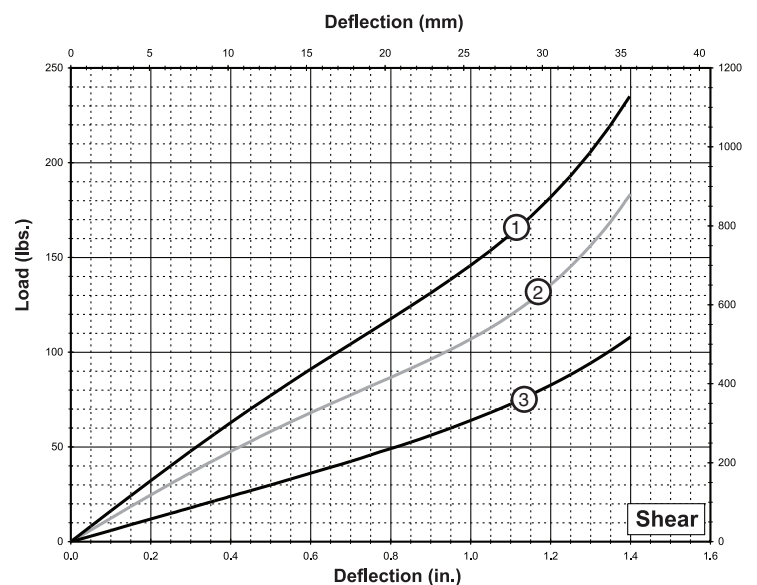
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR8-600	60 (267)	1.30 (33,1)	480 (84)	301 (53)
2	HR8-400	43 (191)	1.30 (33,1)	350 (61)	220 (39)
3	HR8-200	30 (133)	1.30 (33,1)	233 (41)	147 (26)



Roll

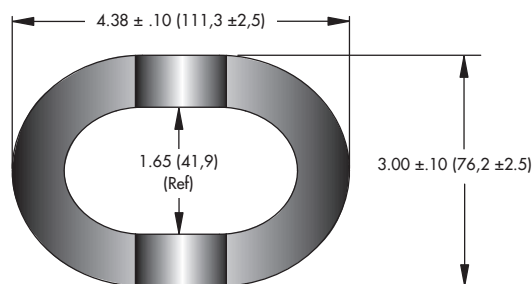
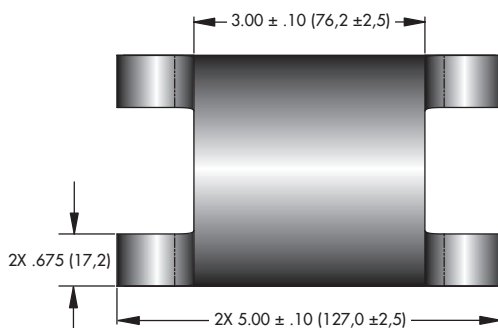
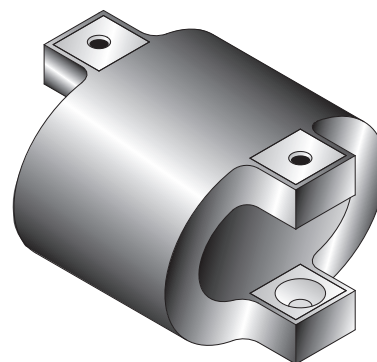
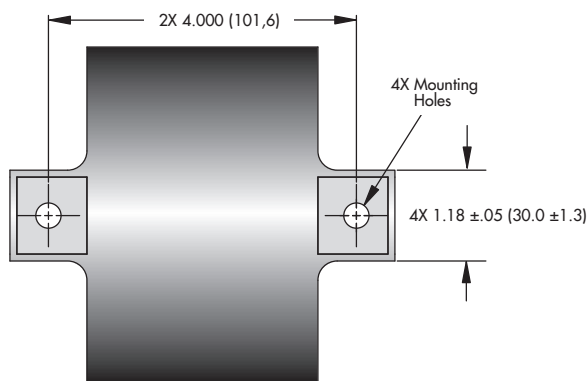
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR8-600	40 (178)	1.40 (35,6)	130 (23)	155 (28)
2	HR8-400	27 (120)	1.40 (35,6)	91 (16)	108 (19)
3	HR8-200	15 (67)	1.40 (35,6)	49 (9)	62 (11)



Shear

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR8-600	68 (302)	1.40 (35,6)	227 (40)	246 (43)
2	HR8-400	48 (214)	1.40 (35,6)	162 (28)	171 (30)
3	HR8-200	24 (107)	1.40 (35,6)	78 (14)	98 (17)

Note: Do not extrapolate plotted curves.



Note: Dimensions are in inches (mm) Tolerances are $\pm .010$ ($\pm .25$ mm)

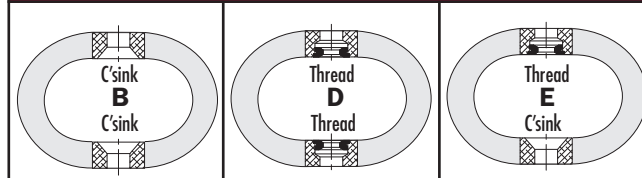
Size	Unit Weight lbs. (Kg)	Mounting Options	Thru Hole in. (mm)	Thread in. (mm)	C'sink Imperial (Metric)
HR12-600	1.8 (0,8)	B, D, E	$\emptyset.328 \pm .005$ ($\emptyset 9,0 \pm 0,13$)	#5/16-18 UNC (M8 X 1,25)	82° (90°)
HR12-400	1.8 (0,8)				
HR12-200	1.8 (0,8)				

Model Number Ordering Code

HR12-200-B L M

- Add "M" for Metric All Mounting Options
- Threaded Hole Options: [L] - Helical, Locking, Dry Film Lubricated
[H] - Helical, Free Running
- Mounting Options: See Chart
- Isolator Model: See Sizing Table

Mounting Options

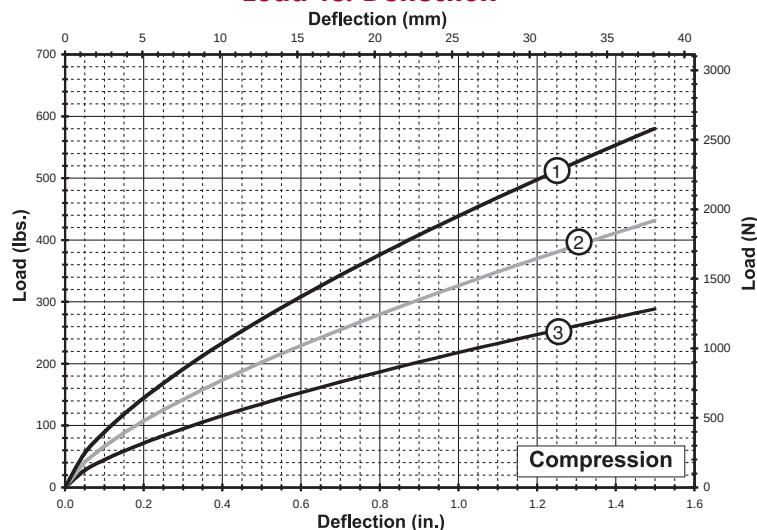


- Meets environmental requirements of MIL-M-17185A

Wire Rope Special Options

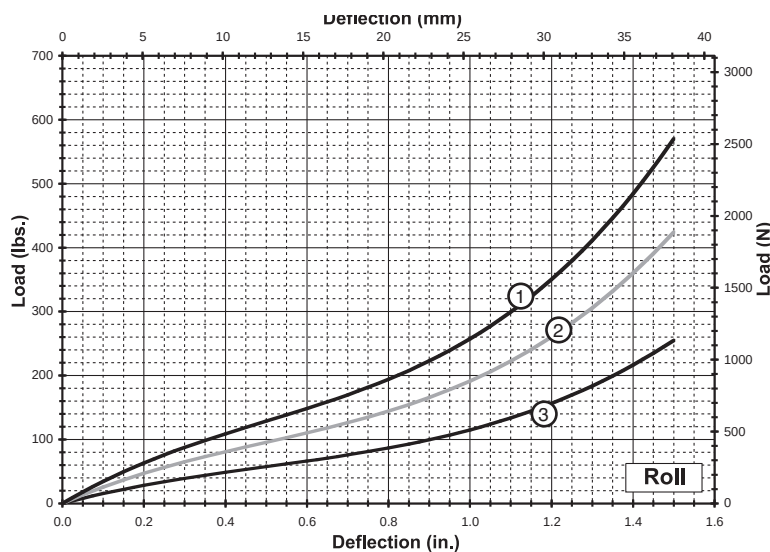
Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 53.

Static Load vs. Deflection



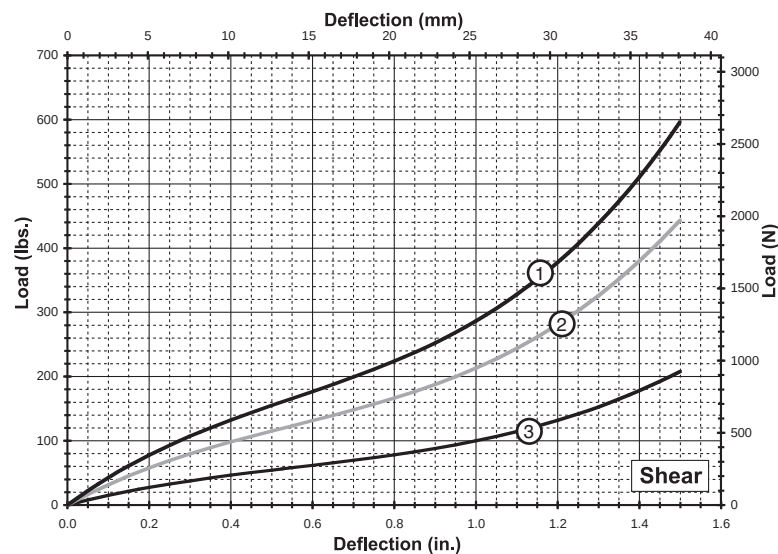
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR12-600	155 (689)	1.50 (38,1)	1,165 (204)	690 (121)
2	HR12-400	115 (512)	1.50 (38,1)	865 (151)	510 (89)
3	HR12-200	80 (356)	1.50 (38,1)	580 (102)	340 (60)



Roll

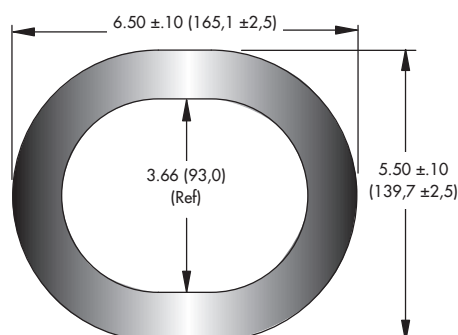
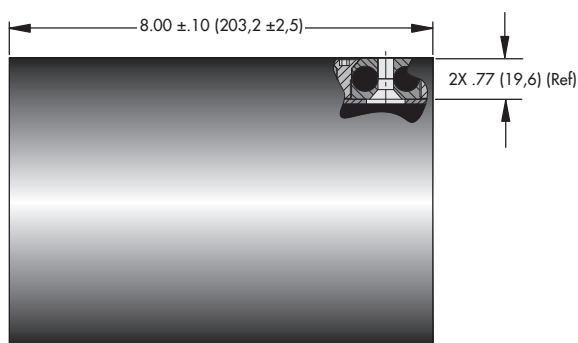
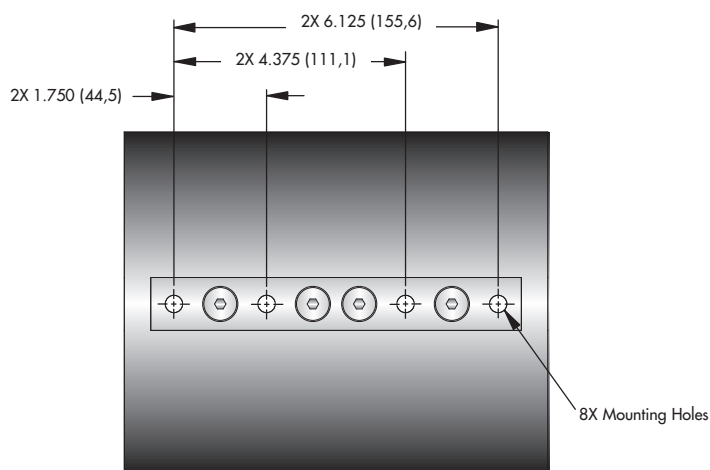
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR12-600	120 (534)	1.50 (38,1)	450 (79)	430 (75)
2	HR12-400	90 (400)	1.50 (38,1)	335 (59)	325 (57)
3	HR12-200	55 (245)	1.50 (38,1)	200 (35)	195 (34)



Shear

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR12-600	145 (645)	1.50 (38,1)	555 (97)	480 (84)
2	HR12-400	105 (467)	1.50 (38,1)	410 (72)	360 (63)
3	HR12-200	50 (222)	1.50 (38,1)	195 (34)	170 (30)

Note: Do not extrapolate plotted curves.



Note: Dimensions are in inches (mm) Tolerances are ± .010 (± .25mm)

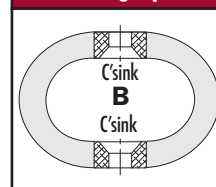
Size	Unit Weight lbs. (Kg)	Mounting Option	Thru Hole in. (mm)	C'sink Imperial
HR16-606	8.8 (4,0)	B	Ø.328 ^{+0.005} _{-.015}	82°
HR16-406	7.5 (3,4)		(Ø8,3 ^{+0,13} _{-0,38})	
HR16-206	6.0 (2,7)			

Model Number Ordering Code

HR16 - 206 - B

Mounting Option: See Chart
Isolator Model: See Sizing Table

Mounting Option

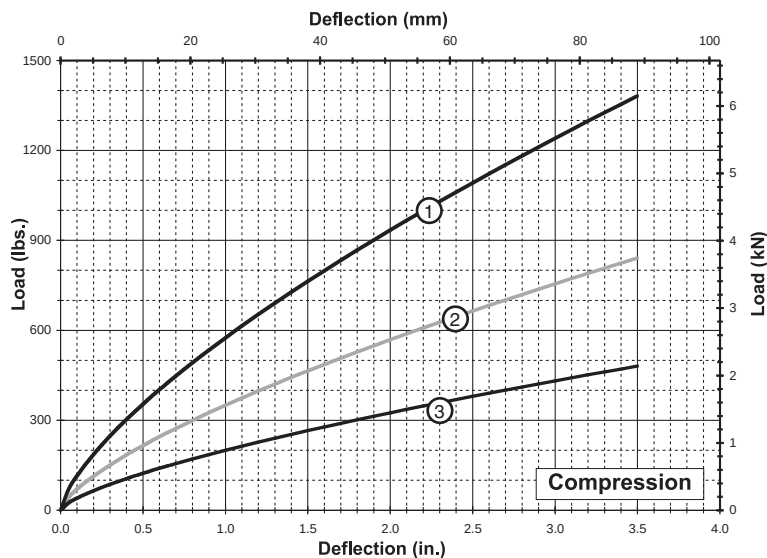


Wire Rope Special Options

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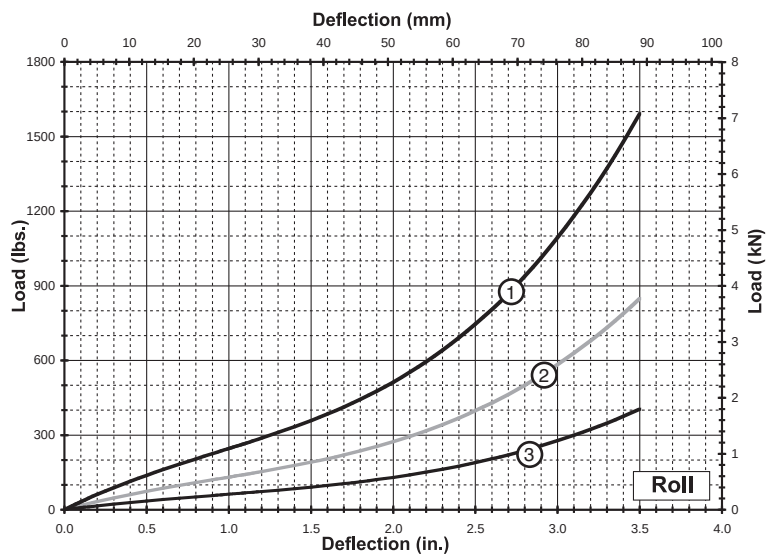
• Meets environmental requirements of MIL-M-17185A

Static Load vs. Deflection



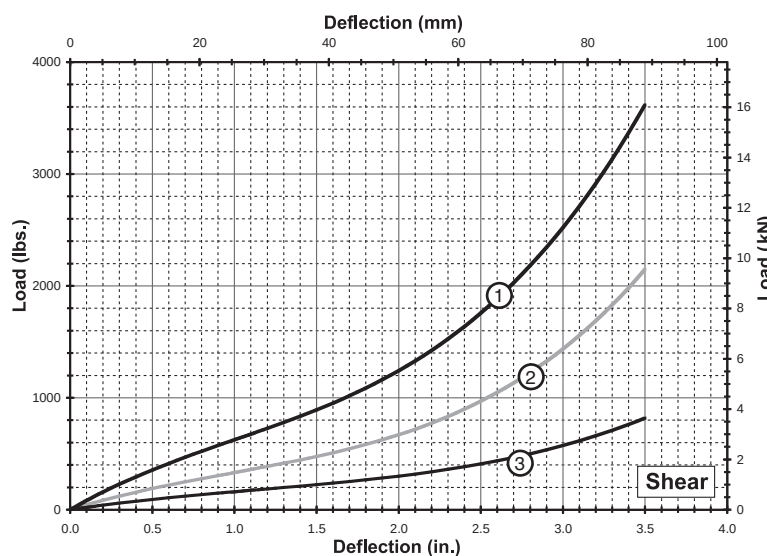
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR16-606	365 (1 624)	3.50 (88,9)	1,490 (261)	700 (123)
2	HR16-406	225 (1 001)	3.50 (88,9)	910 (159)	425 (74)
3	HR16-206	125 (556)	3.50 (88,9)	520 (91)	245 (43)



Roll

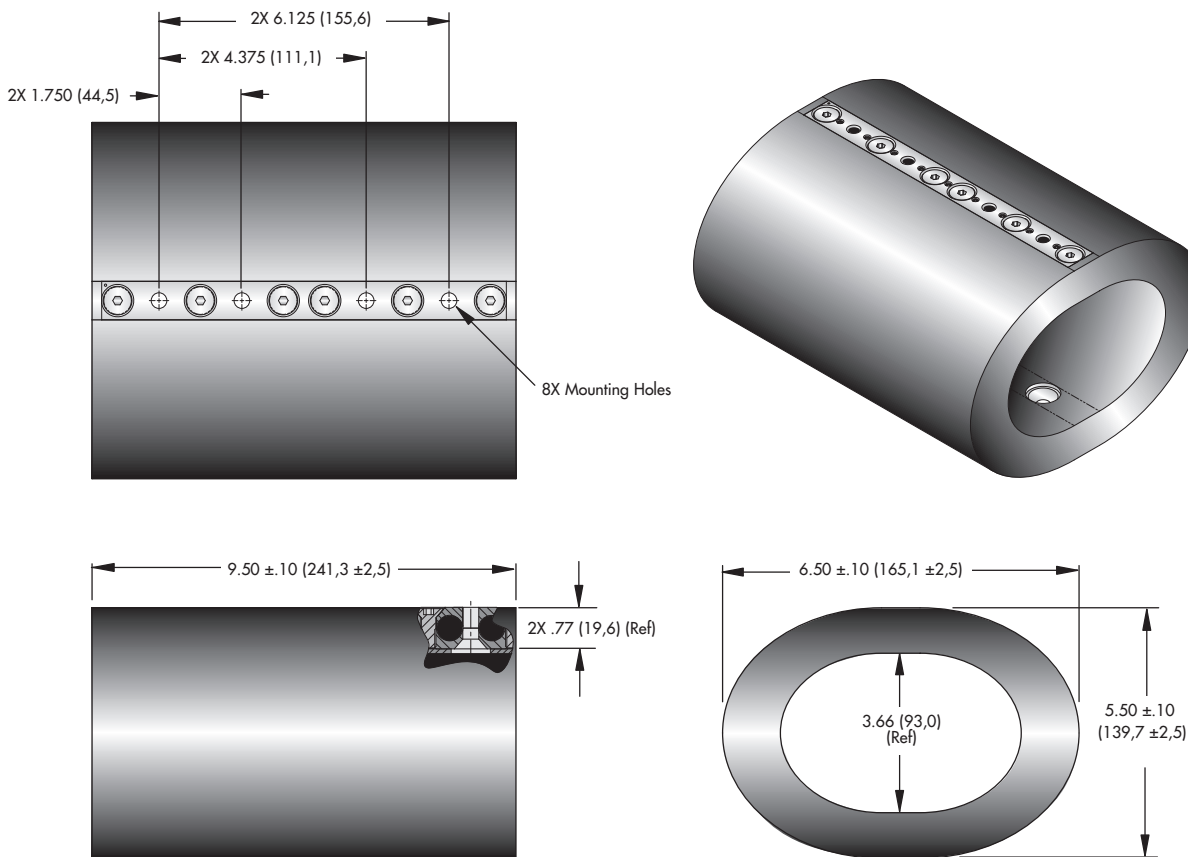
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR16-606	255 (1 134)	3.50 (88,9)	415 (73)	475 (83)
2	HR16-406	135 (601)	3.50 (88,9)	220 (39)	250 (44)
3	HR16-206	65 (289)	3.50 (88,9)	105 (18)	120 (21)



Shear

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR16-606	650 (2 891)	3.50 (88,9)	1,065 (187)	1,115 (195)
2	HR16-406	345 (1 535)	3.50 (88,9)	565 (99)	690 (121)
3	HR16-206	165 (734)	3.50 (88,9)	275 (48)	255 (45)

Note: Do not extrapolate plotted curves.



Note: Dimensions are in inches (mm) Tolerances are ± .010 (± .25mm)

Size	Unit Weight lbs. (Kg)	Mounting Option	Thru Hole in. (mm)	C'sink Imperial
HR16-600	10.5 (4,8)	B	Ø.328 ^{+.005} _{-.015}	82°
HR16-400	9.0 (4,1)		Ø.328 ^{+.005} _{-.015}	
HR16-200	7.5 (3,4)		Ø.328 ^{+.013} _{-.038}	

Model Number Ordering Code

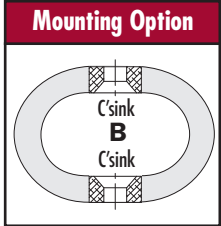
HR16 - 200 - B

Mounting Option:

See Chart

Isolator Model:

See Sizing Table

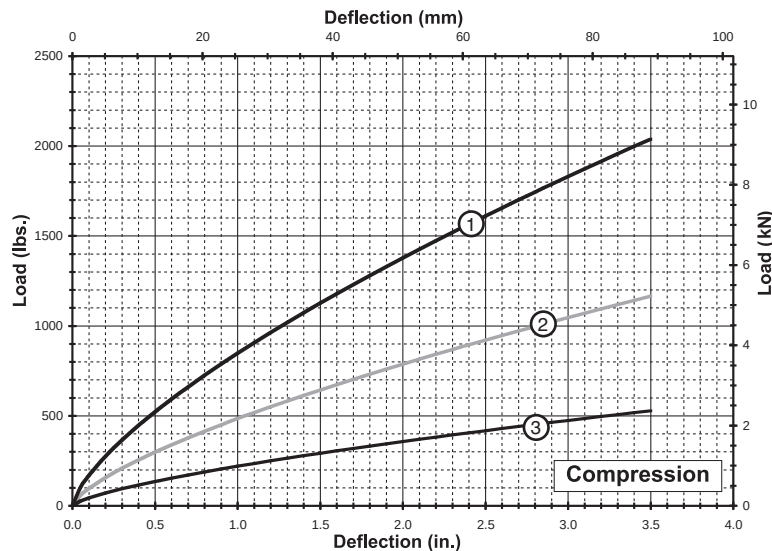


Wire Rope Special Options

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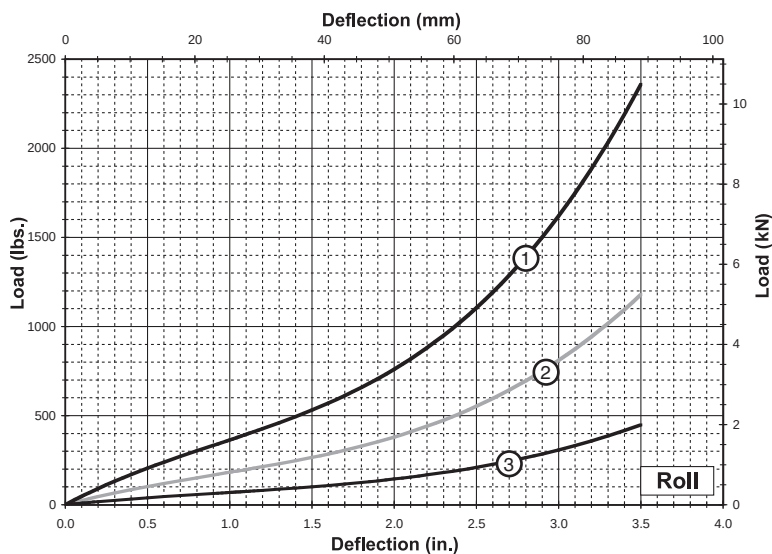
- Meets environmental requirements of MIL-M-17185A

Static Load vs. Deflection



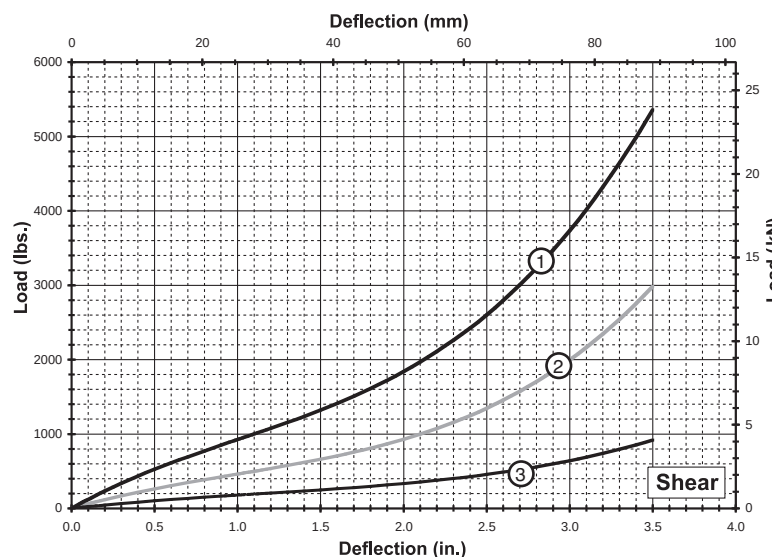
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR16-600	545 (2 424)	3.50 (88,9)	2,220 (389)	1,035 (181)
2	HR16-400	310 (1 379)	3.50 (88,9)	1,260 (221)	590 (103)
3	HR16-200	140 (623)	3.50 (88,9)	570 (100)	270 (47)



Roll

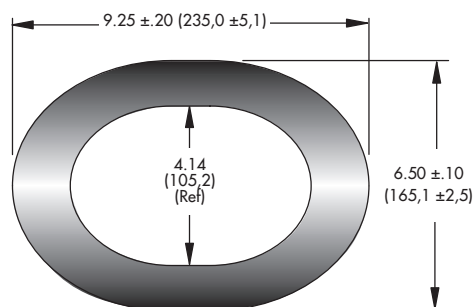
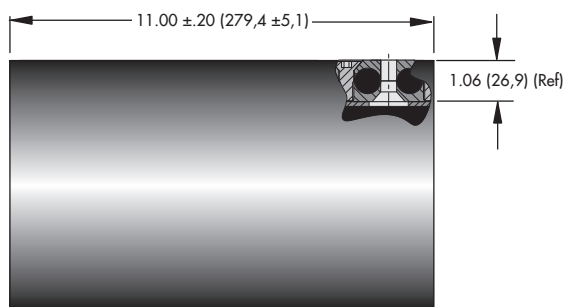
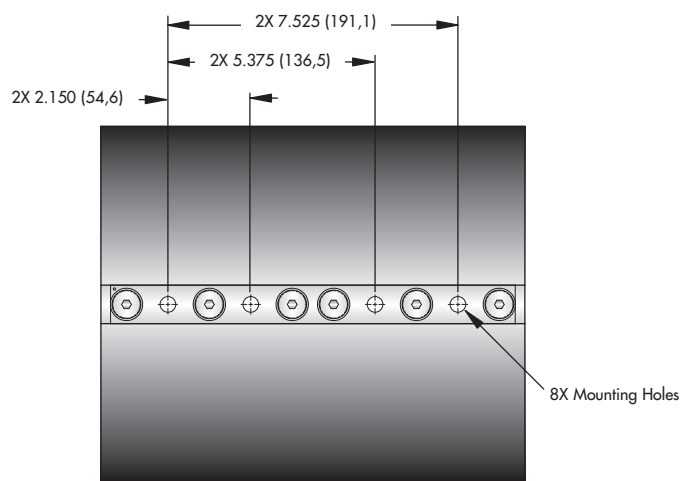
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR16-600	375 (1 668)	3.50 (88,9)	615 (108)	700 (123)
2	HR16-400	185 (823)	3.50 (88,9)	305 (53)	350 (61)
3	HR16-200	70 (311)	3.50 (88,9)	115 (20)	135 (24)



Shear

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR16-600	960 (4 270)	3.50 (88,9)	1,575 (276)	1,655 (290)
2	HR16-400	480 (2 135)	3.50 (88,9)	790 (138)	870 (152)
3	HR16-200	185 (823)	3.50 (88,9)	305 (53)	295 (52)

Note: Do not extrapolate plotted curves.



Note: Dimensions are in inches (mm) Tolerances are ± .010 (± .25mm)

Size	Unit Weight lbs. (Kg)	Mounting Option	Thru Hole in. (mm)	C'sink Imperial
HR20-600	21 (9,5)	B	Ø.406 ^{+0.005} _{-.015}	82°
HR20-400	18 (8,2)			
HR20-200	14 (6,4)		(Ø10,3 ^{+0,13} _{-0,38})	

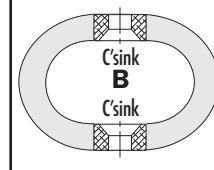
Model Number Ordering Code

HR20 - 200 - B

Mounting Option: See Chart

Isolator Model: See Sizing Table

Mounting Option

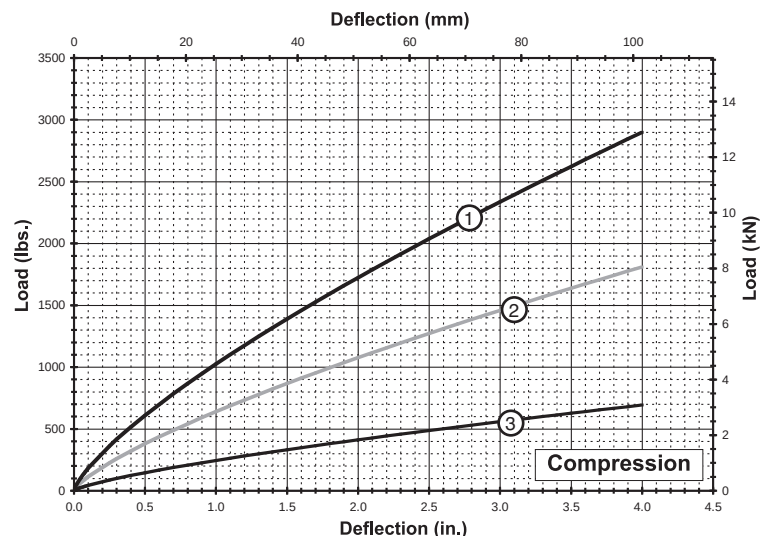


Wire Rope Special Options

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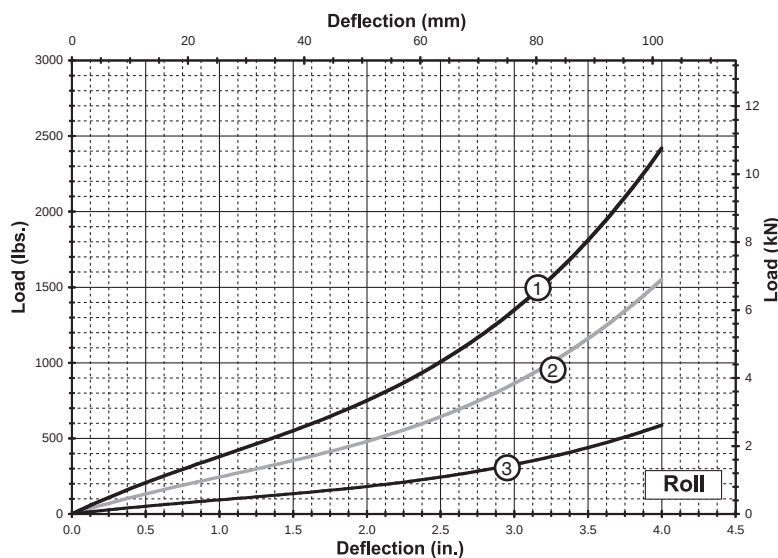
- Meets environmental requirements of MIL-M-17185A

Static Load vs. Deflection



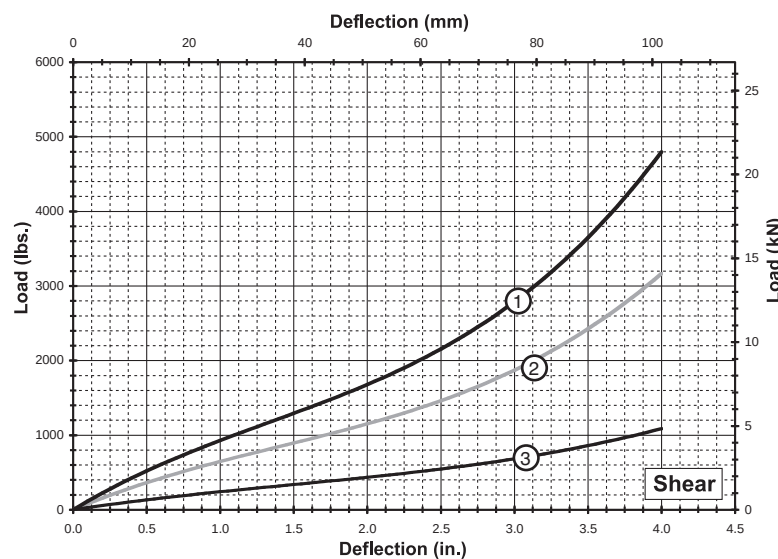
Compression

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR20-600	700 (3 114)	4.00 (101,6)	2,370 (415)	1,245 (218)
2	HR20-400	435 (1 935)	4.00 (101,6)	1,480 (259)	777 (136)
3	HR20-200	165 (734)	4.00 (101,6)	565 (99)	295 (52)



Roll

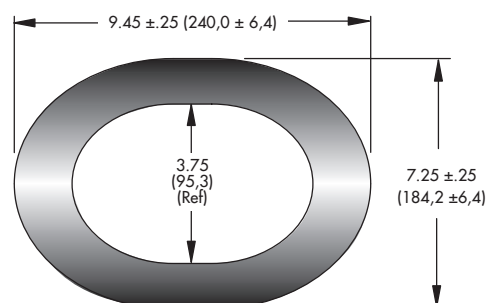
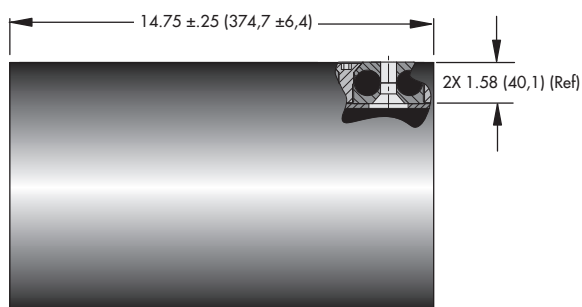
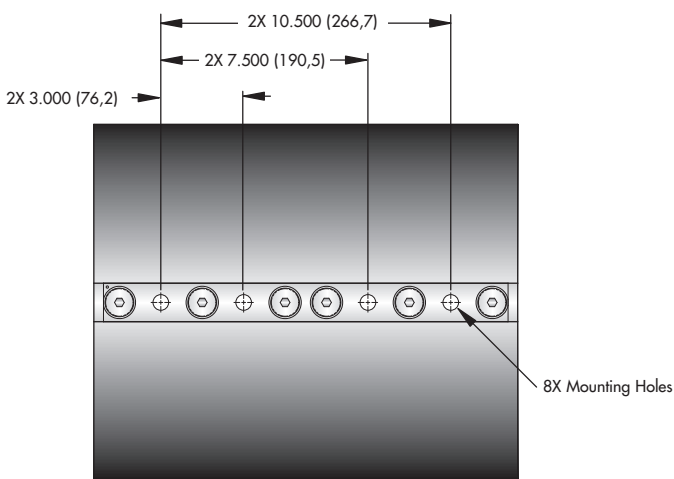
Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR20-600	360 (1 601)	4.00 (101,6)	590 (103)	675 (118)
2	HR20-400	230 (1 023)	4.00 (101,6)	380 (67)	435 (76)
3	HR20-200	90 (400)	4.00 (101,6)	145 (25)	165 (29)



Shear

Curve	Model	Max Static Load Lbs. (N)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR20-600	925 (4 115)	4.00 (101,6)	1,515 (265)	1,440 (252)
2	HR20-400	645 (2 869)	4.00 (101,6)	1,060 (186)	970 (170)
3	HR20-200	230 (1 023)	4.00 (101,6)	380 (67)	355 (62)

Note: Do not extrapolate plotted curves.



Note: Dimensions are in inches (mm) Tolerances are ± .010 (± .25mm)

Size	Unit Weight lbs. (Kg)	Mounting Option	Thru Hole in. (mm)	C'sink Imperial
HR28-600	50 (23)	B	Ø.531 ^{+0.005} / _{-.015}	82°
HR28-400	40 (18)			
HR28-200	30 (14)		Ø13,5 ^{+0,13} / _{-0,38}	

Model Number Ordering Code

HR28 - 200 - B

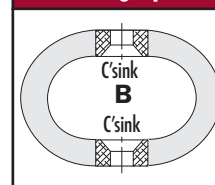
Mounting Option: See Chart

Isolator Model: See Sizing Table

Wire Rope Special Options

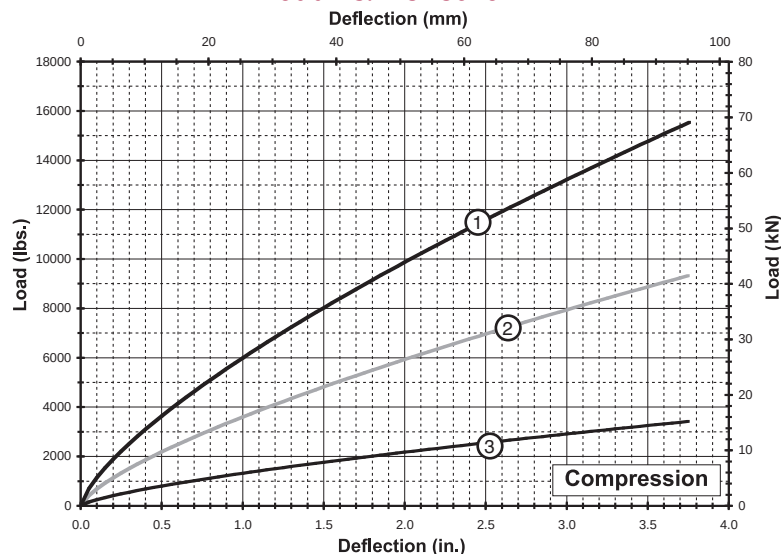
Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 53.

Mounting Option



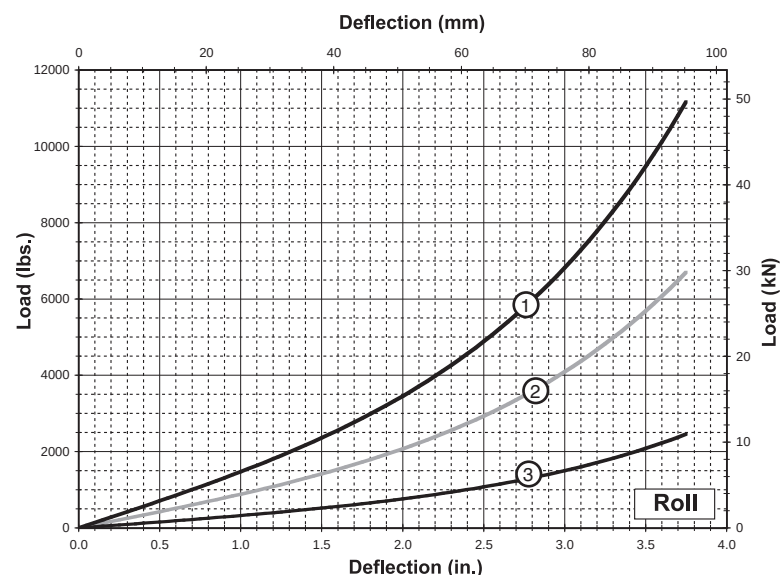
Technical Data

Static Load vs. Deflection



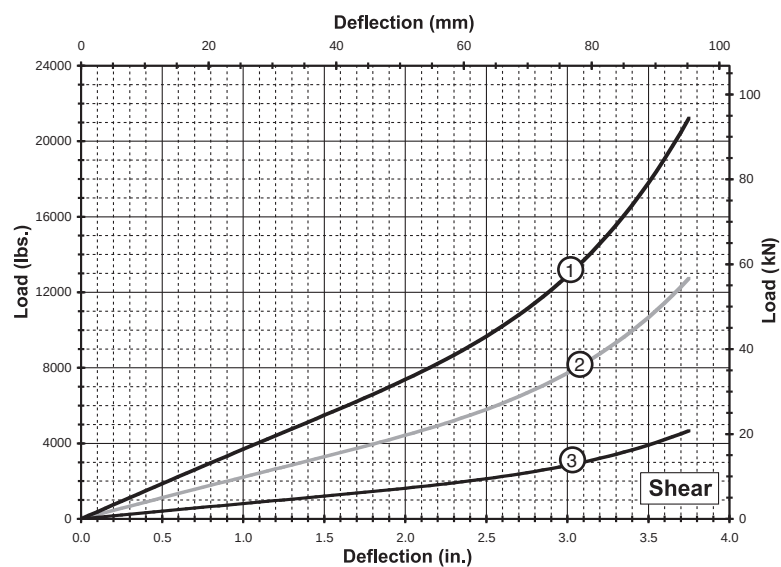
Compression

Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR28-600	4,000 (17,79)	3.75 (95,3)	14,865 (2 603)	7,230 (1 266)
2	HR28-400	2,375 (10,56)	3.75 (95,3)	8,920 (1 562)	4,335 (759)
3	HR28-200	870 (3,87)	3.75 (95,3)	3,270 (573)	1,590 (278)



Roll

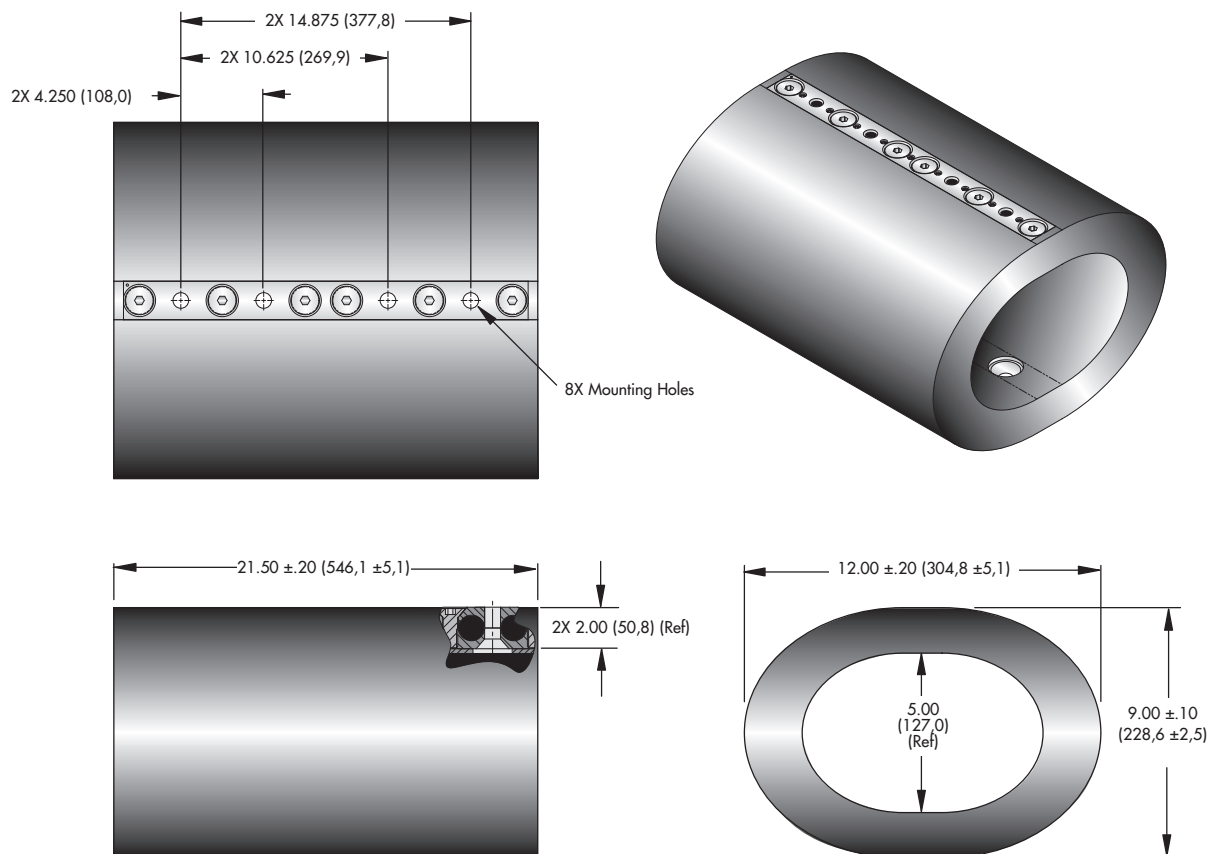
Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR28-600	1,110 (4,94)	3.75 (95,3)	1,820 (319)	3,135 (549)
2	HR28-400	670 (2,98)	3.75 (95,3)	1,095 (192)	1,880 (329)
3	HR28-200	245 (1,09)	3.75 (95,3)	400 (70)	690 (121)



Shear

Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR28-600	2,980 (13,26)	3.75 (95,3)	4,875 (854)	6,315 (1 106)
2	HR28-400	1,790 (7,96)	3.75 (95,3)	2,925 (512)	3,790 (664)
3	HR28-200	655 (2,91)	3.75 (95,3)	1,070 (187)	1,395 (244)

Note: Do not extrapolate plotted curves.



Note: Dimensions are in inches (mm) Tolerances are $\pm .010$ ($\pm .25$ mm)

Size	Unit Weight lbs. (Kg)	Mounting Option	Thru Hole in. (mm)	C'sink Imperial
HR40-600	100 (45)	B	$\emptyset.781$ $^{+.005}_{-.015}$	82°
HR40-400	83 (38)		$\emptyset.781$ $^{+.005}_{-.015}$	
HR40-200	67 (30)		$\emptyset.781$ $^{+.005}_{-.015}$	

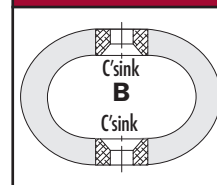
Model Number Ordering Code

HR40 - 200 - B

Mounting Option: See Chart

Isolator Model: See Sizing Table

Mounting Option

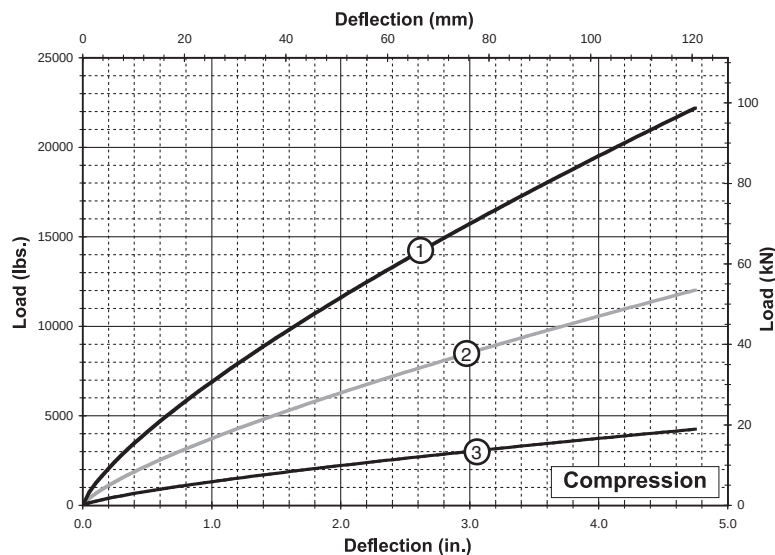


Wire Rope Special Options

Optional materials for the wire rope and mount bars are available upon request. Possibilities include galvanized rope, bell mouth mount bars or stainless steel rope and mount bars. Please contact ITT Enidine to discuss in more detail. Minimum purchase quantities may apply. See page 53.

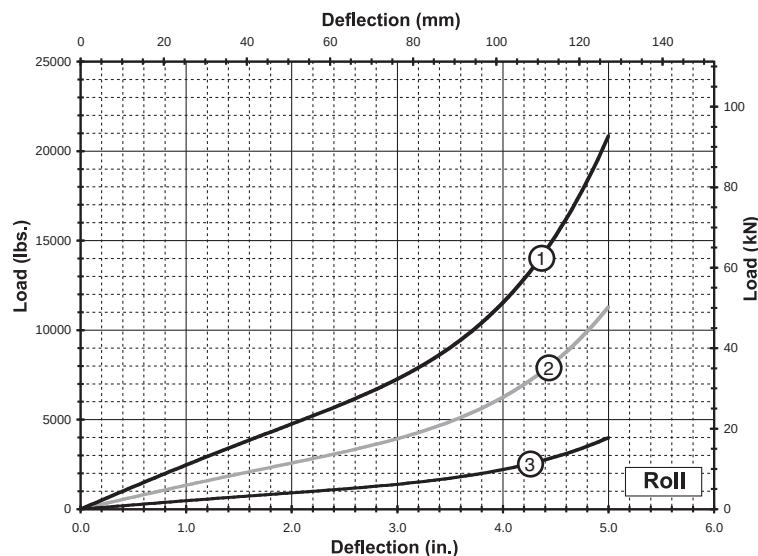
- Meets environmental requirements of MIL-M-17185A

Static Load vs. Deflection



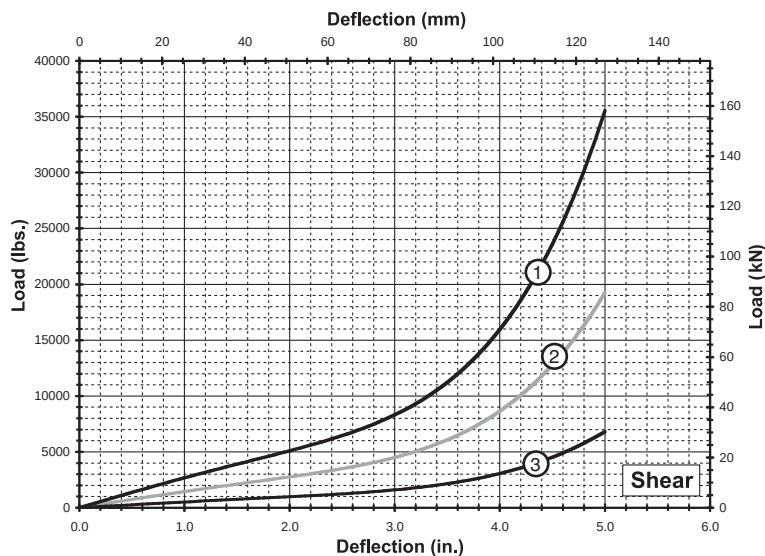
Compression

Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR40-600	5,350 (23,80)	4.75 (120,7)	15,950 (2 793)	8,010 (1 403)
2	HR40-400	2,900 (12,90)	4.75 (120,7)	8,640 (1 513)	4,340 (760)
3	HR40-200	1,025 (4,56)	4.75 (120,7)	3,055 (535)	1,535 (269)



Roll

Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR40-600	2,000 (8,90)	5.00 (127)	3,275 (574)	4,330 (758)
2	HR40-400	1,085 (4,83)	5.00 (127)	1,775 (311)	2,440 (427)
3	HR40-200	385 (1,71)	5.00 (127)	630 (110)	850 (149)



Shear

Curve	Model	Max Static Load Lbs. (kN)	Max Deflection in. (mm)	Kv (vibration) Lbs./in. (kN/m)	Ks (shock) Lbs./in. (kN/m)
1	HR40-600	2,190 (9,74)	5.00 (127)	3,585 (628)	5,780 (1 012)
2	HR40-400	1,190 (5,29)	5.00 (127)	1,945 (341)	3,145 (551)
3	HR40-200	420 (1,87)	5.00 (127)	685 (120)	1,080 (189)

Note: Do not extrapolate plotted curves.



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.

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 ITT Enidine directly.

Typical Applications

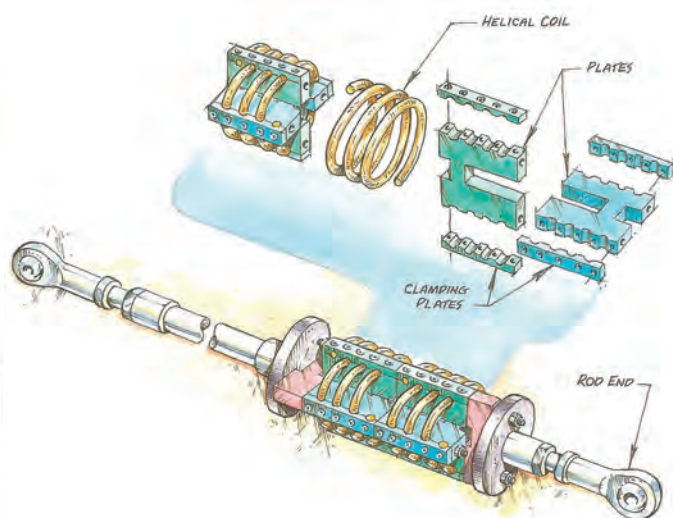
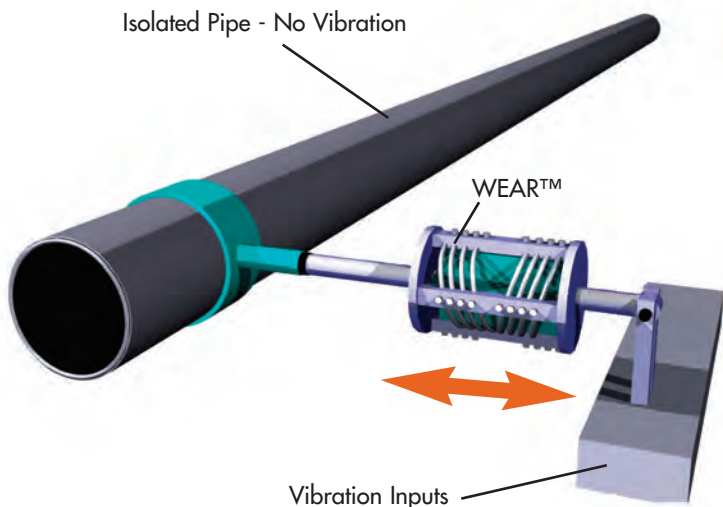
- Pipe Restraint
- Hydraulic Transients
- Power Generating Plants
- Chemical Plants
- Seismic Restraints
- Steady State Vibration
- Nuclear Plants
- Refineries
- Structural Vibration
- Wind Loading
- Pulp and Paper Mills

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

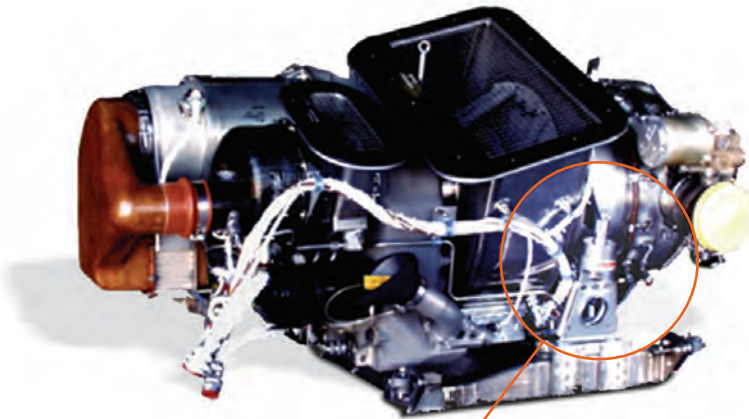


Captured every quarter loop, wire rope coil will not collapse; two-pitch design prevents twisting.



Wire Mesh Isolators

Wire mesh material can be manufactured in a multitude of shapes and sizes to accommodate your specific application. When exercised, the wire mesh damping elements convert input energy to heat. Friction is created when knitted or woven stainless steel wire strands are displaced relative to one another. Knitted metals have inherent resiliency and provide high-damping characteristics and non-linear spring rates.



Wire Mesh Isolator

Wire Mesh Isolator Features:

- Wide operating temperature range
- Long service life
- Environmental compatibility
- Maintenance-free operation
- Custom sizes and shapes available

Wire Mesh Isolator Typical Applications:

- Auxiliary Power Units
- Engines
- Communications Equipment
- Medical Equipment
- Sensitive Mobile Electronics

Material Development:

If your application parameters fall outside of the standard product line, you can be sure that Enidine has the engineering capabilities and resources to design, test and recommend a custom solution to suit your specific needs:

- 3D Modeling
- System Analysis (Modal, Linear/Non-Linear, Dynamic Analysis and Simulation, Finite Element, Shock and Vibration)
- In-house test facility for prototypes and production models: Static Load/Deflection, Life Cycle, Vibration Frequency, Dynamic Load, Random Input and High Frequency Noise
- AS-9100 Certified
- ISO 9001 Certified

Notes:

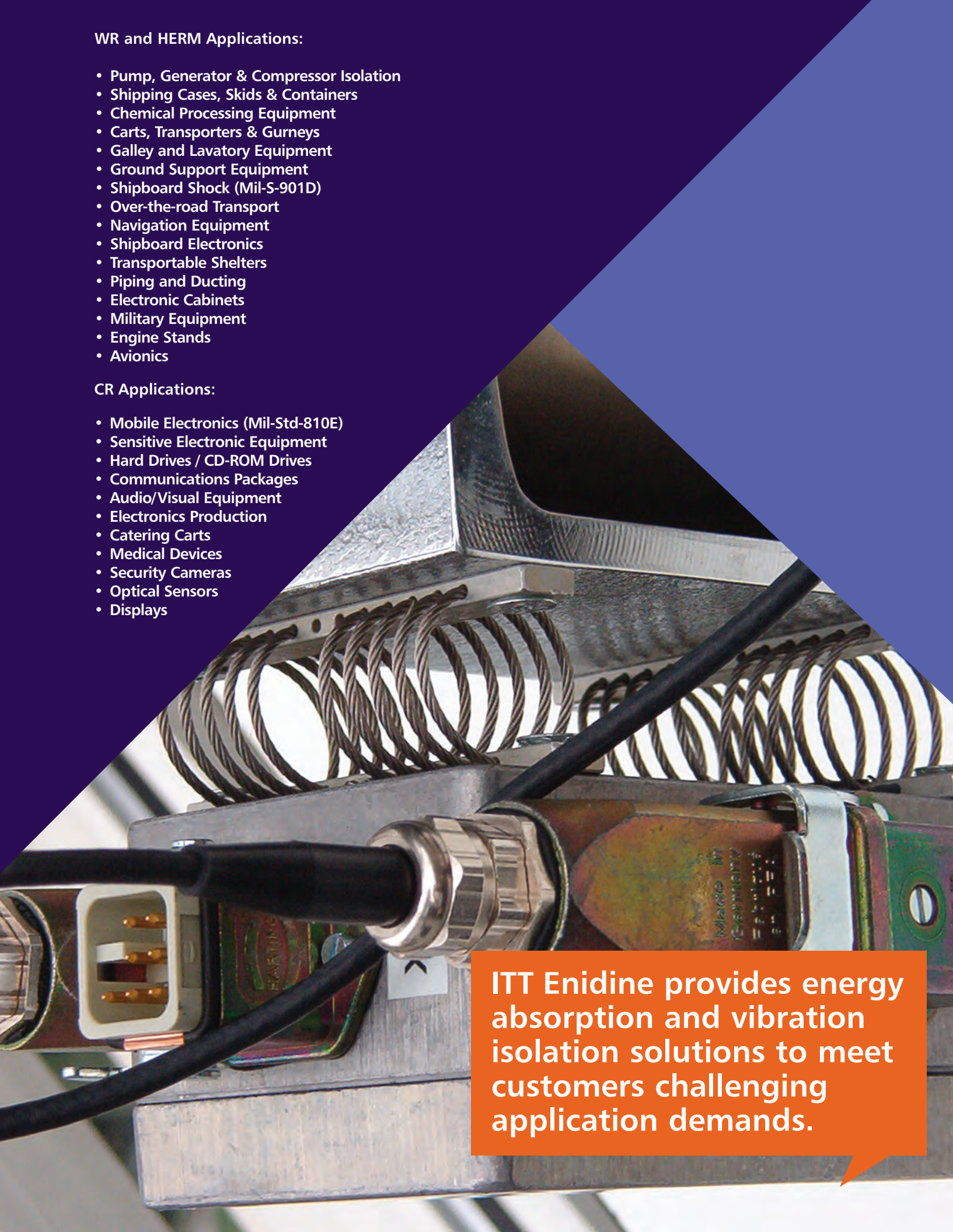
Notes

WR and HERM Applications:

- Pump, Generator & Compressor Isolation
- Shipping Cases, Skids & Containers
- Chemical Processing Equipment
- Carts, Transporters & Gurneys
- Galley and Lavatory Equipment
- Ground Support Equipment
- Shipboard Shock (Mil-S-901D)
- Over-the-road Transport
- Navigation Equipment
- Shipboard Electronics
- Transportable Shelters
- Piping and Ducting
- Electronic Cabinets
- Military Equipment
- Engine Stands
- Avionics

CR Applications:

- Mobile Electronics (Mil-Std-810E)
- Sensitive Electronic Equipment
- Hard Drives / CD-ROM Drives
- Communications Packages
- Audio/Visual Equipment
- Electronics Production
- Catering Carts
- Medical Devices
- Security Cameras
- Optical Sensors
- Displays



ITT Enidine provides energy absorption and vibration isolation solutions to meet customers challenging application demands.



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