Enidine Wire Rope Isolators

Solutions in Energy Absorption and Vibration Isolation.
Typical Wire Rope Isolator Applications

Electronic Enclosures

Medi-vac Equipment

Radar Systems

Power Units

Mobile Electronic Equipment

Other Wire Rope Isolator Applications

- Avionics
- Carts, Transporters & Gurneys
- Chemical Processing Equipment
- Chimneys, Scrubbers & Vessels
- Electronic Cabinets
- Military Equipment
- Navigation Equipment
- Over-the-road Transport
- Power Plant Piping Suspension
- Pump, Generator & Compressor Isolation
- Seismic Isolation
- Shipboard Electronics
- Shipping Cases, Skids & Containers
- Transportable Shelters
Enidine, a preferred source for energy absorption and vibration isolation solutions, offers a full range of Wire Rope and Compact Wire Rope Isolator products, each designed to reduce the harmful effects of shock and vibration.

**Wire Rope Isolators**

Wire Rope Isolators are comprised of stainless steel stranded cable, threaded through aluminum alloy retaining bars, crimped and mounted for effective vibration isolation. With their corrosion resistant, all-metal construction, 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-901, MIL-E-5400, STANAG-042, BV43-44 and DEF-STND 0755. For more information, please refer to our “Wire Rope Isolator Selection Guide” on pages 2-3 to assist in selecting a model for your application.

**Compact Wire Rope Isolators**

For the best in vibration isolation capabilities, choose 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.

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 Enidine Wire Rope Isolators, 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 MIL-SPCE similar to those of our Wire Rope Isolator series. Please refer to our “Compact Wire Rope Isolator Selection Guide” on pages 32-33 for more information.

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

For further information on Enidine Wire Rope and Compact Wire Rope Isolator products, technical assistance and pricing, please contact Enidine or your nearest authorized distributor. A list of Enidine distributors can be found by visiting our website at www.enidine.com.
Selecting appropriate isolators for shock is based on the Wire Rope Isolator’s average stiffness at the required dynamic deflection ($D_{min}$). Follow the steps below to achieve a recommended Wire Rope Isolator selection.

**STEP 1:**
Fill out Part I and Part III of the Application Worksheet.

**STEP 2:**
Refer to the Load vs. Deflection curves for the desired loading orientation. Use the System Natural Frequency ($f_n$) calculated from the worksheet to select the smallest Wire Rope Isolator model capable of the static load ($W$).

**STEP 3:**
Specify the required mounting option suffix to complete the part number. (Please refer to available mounting options as indicated on each Wire Rope Isolator series data page.)

If the desired system natural frequency is known, refer to the appropriate Load vs. Natural Frequency curves to determine the recommended Wire Rope Isolator model. If the preferred system natural frequency is unknown, follow the steps below to achieve a recommended Wire Rope Isolator selection.

**STEP 1:**
Fill out Part I and Part II of the Application Worksheet.

**STEP 2:**
Refer to the Load vs. Natural Frequency curves for the required loading orientation. Use the System Natural Frequency ($f_n$) calculated from the worksheet to select the smallest Wire Rope Isolator model capable of the static load ($W$).

**STEP 3:**
Specify the required mounting option suffix to complete the part number. (Please refer to available mounting options as indicated on each Wire Rope Isolator series data page.)

**APPLICATION WORKSHEET - INPUTS IMPERIAL/METRIC**

**PART I: SYSTEM DATA:**
1. Total Load ($W_T$): $W_T = \ldots$ lbs.
2. Number of Isolators ($n$): $n = \ldots$
3. Static Load per Isolator ($W$): $W = \ldots$ lbs.

**PART II: VIBRATION SIZING:**
1. Input Excitation Frequency ($f_i$): $f_i = \ldots$ Hz
2. System Natural Frequency for 80% isolation: $f_n = \ldots$ Hz

**PART III: SHOCK SIZING:**
1. Maximum Allowable Transmitted G Load: ($G_T$): $\ldots$ G's
2. Shock Input Velocity: ($V$): $\ldots$ in./sec.
3. Min. Response Deflection: $D_{min} = \ldots$ in.
4. Average Force: $F_{avg} = \ldots$ lbs.
5. Average Deflection: $d_{avg} = \ldots$ in.

**Ordering Information**
Fax, phone, or mail your order to the nearest Enidine/distributor location, Attention: Sales Department (see back cover for listing of Enidine locations).

**EXAMPLE:**

WR8 – 600-08 – \[ \ldots \]


****Please refer to available mounting options as indicated on each WR series data page.
Selecting An Enidine Wire Rope Isolator

VIBRATION ISOLATION:

A 1,400-lb. pump is rotating at 1,725 rpm, transmitting vibration to adjoining equipment. To control the damaging effects of unwanted vibration, the pump shall be isolated using four (4) isolators mounted in the compression load axis with imperial, flat head cap screws. The isolators shall be located symmetrically about the pump’s center of gravity.

Step 1: From Part I and Part II of the Application Worksheet.

\[ W_f = 1,400 \text{ lbs.}, \quad F_i = 1,725 \frac{1}{60} = 28.75 \text{ Hz} \]

\[ W = 1,400 \div 4 = 350 \text{ lbs.}, \quad F_n = 2,875 \div 60 = 9.6 \text{ Hz} \]

Step 2: Referring to the Compression Load vs. Natural Frequency curves for an isolator capable of a maximum static load of 350 lbs., and a System Natural Frequency of approximately 9.6 Hz, yields a recommended isolator selection of WR16-206-06.

Step 3: From the Available Mounting Options column, verify that a “B” mounting style is available (for flat head cap screws in both mount bars). Adding the mounting option suffix to the model number gives the complete part number of WR16-206-06-B.

SHOCK ISOLATION:

Sensitive electronic equipment weighing 164 lbs. must withstand a 9-inch drop shock when packaged inside of its shipping container. The electronics shall be suspended inside of the container’s shell using eight (8) isolators (4 per side) in the roll loading axis. The equipment can withstand a maximum shock response of 15G’s. The isolators shall be installed symmetrically about the equipment’s center of gravity. Threaded metric holes is the desired mounting option.

Step 1: From Part I and Part III of the Application Worksheet.

\[ V = \sqrt{\frac{2(15)(9)}{386}} = 83.4 \text{ inches per second} \]

\[ F_{avg} = \frac{(20.5)(83.4)^2}{2(386)(1.29)} = 143 \text{ lbs.} \]

\[ D_{min} = \frac{83.4^2}{386(1.5 - 1)} = 1.29 \text{ inches} \]

\[ d_{avg} = \frac{1.29}{2} = .65 \text{ inches} \]

Step 2: Referring to the Shear/Roll Load vs. Deflection curves for an isolator capable of a maximum deflection of 1.29 inches or greater, and a curve point that is at or slightly below a force of 143 lbs. at .65 inches of deflection, yields a recommended isolator selection of WR12-506-06.

Step 3: From the Available Mounting Options column, verify that a “D” mounting style is available (for threaded holes in both mount bars). Adding the mounting option suffix to the model number, and metric designation (M) gives the complete part number of WR12-506-06-D-M.

Performance Considerations

The following should be considered when selecting Enidine Wire Rope Isolator products:

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

Stabilizers:
• Consider the use of stabilizers when the Height vs. Width ratio is greater than 2.

Natural Frequency Curve Basis:
• Published natural frequency curves are based on a 1G input condition. Natural frequency shifts may result from various input levels.

Severe Input Considerations:
• Increase diameter of the wire rope cable.
• Increase height of the Wire Rope Isolators.
• Consult Enidine.
### WR2 Series

Note: Dimensions are in inches (mm).

#### Imperial

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR2-100-10</td>
<td>S, D, E</td>
<td>0.70 x 1.00</td>
<td>0.05 lbs.</td>
</tr>
<tr>
<td>WR2-200-10</td>
<td>S, A, B, C, D, E</td>
<td>0.80 x 1.10</td>
<td>0.06 lbs.</td>
</tr>
<tr>
<td>WR2-300-10</td>
<td>S, A, B, C, D, E</td>
<td>1.00 x 1.30</td>
<td>0.07 lbs.</td>
</tr>
<tr>
<td>WR2-400-10</td>
<td>S, A, B, C, D, E</td>
<td>1.10 x 1.30</td>
<td>0.07 lbs.</td>
</tr>
<tr>
<td>WR2-500-10</td>
<td>S, A, B, C, D, E</td>
<td>1.20 x 1.40</td>
<td>0.07 lbs.</td>
</tr>
<tr>
<td>WR2-600-10</td>
<td>S, A, B, C, D, E</td>
<td>1.30 x 1.50</td>
<td>0.07 lbs.</td>
</tr>
</tbody>
</table>

#### Metric

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR2-100-10</td>
<td>BM, DM, EM</td>
<td>18 x 25</td>
<td>0.02 Kg.</td>
</tr>
<tr>
<td>WR2-200-10</td>
<td>BM, DM, EM</td>
<td>25 x 30</td>
<td>0.02 Kg.</td>
</tr>
<tr>
<td>WR2-300-10</td>
<td>BM, DM, EM</td>
<td>28 x 33</td>
<td>0.03 Kg.</td>
</tr>
<tr>
<td>WR2-400-10</td>
<td>BM, DM, EM</td>
<td>20 x 28</td>
<td>0.02 Kg.</td>
</tr>
<tr>
<td>WR2-500-10</td>
<td>BM, DM, EM</td>
<td>25 x 30</td>
<td>0.03 Kg.</td>
</tr>
<tr>
<td>WR2-600-10</td>
<td>BM, DM, EM</td>
<td>30 x 36</td>
<td>0.03 Kg.</td>
</tr>
<tr>
<td>WR2-700-10</td>
<td>BM, DM, EM</td>
<td>33 x 38</td>
<td>0.03 Kg.</td>
</tr>
</tbody>
</table>

#### Mounting Hardware

**IMPERIAL**
- A (M): Thru Hole Countersunk Hole
- B (M): Thru Hole Countersunk Hole

**METRIC**
- S: Thru Hole
- A (M): Thru Hole Countersunk Hole
- B (M): Thru Hole Countersunk Hole
- C (M): Thru Hole
- D (M): Threaded Countersunk Hole
- E (M): Threaded Countersunk Hole

*Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.*

**Standard Materials & Finishes**
- Cable: Stranded 300 Series Stainless Steel
- Retaining Bars: Aluminum Alloy, treated per MIL-C-5541

**Maximum recommended torque for threaded insert is 6 in.-lbs. (0.7 Nm)**

**Operating Temperature Range**
- -150°F to 500°F (-100°C to 260°C)
WR2 Series

Load vs. Deflection

Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.

KEY
1 WR2-100-10
2 WR2-200-10
3 WR2-400-10
4 WR2-600-10
5 WR2-700-10
6 WR2-800-10

Load vs. Natural Frequency

45° Compression / Roll

KEY
1 WR2-100-10
2 WR2-200-10
3 WR2-400-10
4 WR2-600-10
5 WR2-700-10
6 WR2-800-10

Shear / Roll

KEY
1 WR2-100-10
2 WR2-200-10
3 WR2-400-10
4 WR2-600-10
5 WR2-700-10
6 WR2-800-10

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## WR3 Series

**Imperial**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION [ ]</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT ( \text{lbs.} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR3-100-10-1</td>
<td>S, B, D, E</td>
<td>H (in.) 0.80, W (in.) 1.10</td>
<td>0.14</td>
</tr>
<tr>
<td>WR3-200-10-1</td>
<td>S, A, B, C, D, E</td>
<td>H (in.) 1.00, W (in.) 1.20</td>
<td>0.15</td>
</tr>
<tr>
<td>WR3-400-10-1</td>
<td>S, A, B, C, D, E</td>
<td>H (in.) 1.30, W (in.) 1.50</td>
<td>0.15</td>
</tr>
<tr>
<td>WR3-600-10-1</td>
<td>S, A, B, C, D, E</td>
<td>H (in.) 1.40, W (in.) 1.60</td>
<td>0.16</td>
</tr>
<tr>
<td>WR3-700-10-1</td>
<td>S, A, B, C, D, E</td>
<td>H (in.) 1.50, W (in.) 1.70</td>
<td>0.18</td>
</tr>
</tbody>
</table>

**Metric**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION [ ]</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT ( \text{Kg} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR3-100-10-1</td>
<td>BM, DM, EM</td>
<td>H (mm) 23, W (mm) 28</td>
<td>0.06</td>
</tr>
<tr>
<td>WR3-200-10-1</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H (mm) 25, W (mm) 30</td>
<td>0.07</td>
</tr>
<tr>
<td>WR3-400-10-1</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H (mm) 28, W (mm) 33</td>
<td>0.07</td>
</tr>
<tr>
<td>WR3-600-10-1</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H (mm) 33, W (mm) 38</td>
<td>0.07</td>
</tr>
<tr>
<td>WR3-700-10-1</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H (mm) 36, W (mm) 41</td>
<td>0.07</td>
</tr>
<tr>
<td>WR3-800-10-1</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H (mm) 38, W (mm) 43</td>
<td>0.08</td>
</tr>
</tbody>
</table>

### Mounting Options

- **S**: Thru Hole
- **A(M)**: Thru Hole, Countersunk Hole
- **B(M)**: Countersunk Hole
- **C(M)**: Thru Hole, Threaded
- **D(M)**: Threaded
- **E(M)**: Threaded, Countersunk Hole

### Mounting Hardware

- **Imperial**: #10-32 M5 (x 0.8)
- **Metric**: 82° COUNTERSINK, 90° COUNTERSINK

### Operating Temperature Range

- **CWR-coverNEW/RED**: 11/20/02  2:42 PM  Page 10

* Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.
**Notes:**

A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
WR4 Series

Note: Dimensions are in inches (mm).

### Imperial

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION [ ]</th>
<th>DIMENSIONS [in. (mm)]</th>
<th>UNIT WEIGHT (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR4-100-10-[]</td>
<td>B, D, E</td>
<td>H: 1.10, W: 1.40</td>
<td>0.26</td>
</tr>
<tr>
<td>WR4-200-10-[]</td>
<td>B, D, E</td>
<td>H: 1.20, W: 1.50</td>
<td>0.26</td>
</tr>
<tr>
<td>WR4-400-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 1.30, W: 1.60</td>
<td>0.29</td>
</tr>
<tr>
<td>WR4-500-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 1.40, W: 1.70</td>
<td>0.29</td>
</tr>
<tr>
<td>WR4-600-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 1.50, W: 1.80</td>
<td>0.30</td>
</tr>
<tr>
<td>WR4-700-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 1.60, W: 1.90</td>
<td>0.30</td>
</tr>
<tr>
<td>WR4-800-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 1.70, W: 2.00</td>
<td>0.30</td>
</tr>
</tbody>
</table>

### Metric

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION [ ]</th>
<th>DIMENSIONS [mm]</th>
<th>UNIT WEIGHT (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR4-100-10-[]</td>
<td>B, D, E</td>
<td>H: 28, W: 36</td>
<td>0.12</td>
</tr>
<tr>
<td>WR4-200-10-[]</td>
<td>B, D, E</td>
<td>H: 30, W: 38</td>
<td>0.12</td>
</tr>
<tr>
<td>WR4-400-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 33, W: 41</td>
<td>0.13</td>
</tr>
<tr>
<td>WR4-500-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 36, W: 43</td>
<td>0.13</td>
</tr>
<tr>
<td>WR4-600-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 38, W: 46</td>
<td>0.13</td>
</tr>
<tr>
<td>WR4-700-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 41, W: 48</td>
<td>0.14</td>
</tr>
<tr>
<td>WR4-800-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 43, W: 51</td>
<td>0.14</td>
</tr>
</tbody>
</table>

### MOUNTING OPTIONS

- **S**
  - Three Holes
- **A(M)**
  - Three Holes
  - Countersunk
- **B(M)**
  - Countersunk
- **C(M)**
  - Three Holes
- **D(M)**
  - Threaded
- **E(M)**
  - Countersunk

### MOUNTING HARDWARE

- **IMPERIAL**: 1/4-20 M6 (x 1,0)
- **METRIC**: M6 (x 1,0)

*60° COUNTERSINK 90° COUNTERSINK*

Maximum recommended torque for threaded insert is 36 in.-lbs. (3,7 Nm)

### Standard Materials & Finishes*

- Cable: Stranded 300 Series Stainless Steel Retaining Bars: Aluminum Alloy, treated per MIL-C-5541

* Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.

### Operating Temperature Range

-150°F to 500°F (-100°C to 260°C)
WR4 Series

Load vs. Deflection

Natural Frequency

Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.

KEY
1 W R4-100-10
2 W R4-200-10
3 W R4-400-10
4 W R4-500-10
5 W R4-600-10
6 W R4-700-10
7 W R4-800-10
## WR5 Series

Note: Dimensions are in inches (mm).

### Imperial

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION [ ]</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT ( lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR5-200-10-[ ]</td>
<td>B, D, E</td>
<td>H 1.20 W 1.50</td>
<td>0.33</td>
</tr>
<tr>
<td>WR5-400-10-[ ]</td>
<td>S, A, B, C, D, E</td>
<td>H 1.30 W 1.70</td>
<td>0.33</td>
</tr>
<tr>
<td>WR5-600-10-[ ]</td>
<td>S, A, B, C, D, E</td>
<td>H 1.50 W 1.90</td>
<td>0.35</td>
</tr>
<tr>
<td>WR5-800-10-[ ]</td>
<td>S, A, B, C, D, E</td>
<td>H 1.80 W 2.10</td>
<td>0.38</td>
</tr>
<tr>
<td>WR5-900-10-[ ]</td>
<td>S, A, B, C, D, E</td>
<td>H 2.10 W 2.50</td>
<td>0.39</td>
</tr>
</tbody>
</table>

### Metric

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION [ ]</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR5-200-10-[ ]</td>
<td>BM, DM, EM</td>
<td>H 30 W 41</td>
<td>0.16</td>
</tr>
<tr>
<td>WR5-400-10-[ ]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H 33 W 43</td>
<td>0.16</td>
</tr>
<tr>
<td>WR5-600-10-[ ]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H 36 W 49</td>
<td>0.16</td>
</tr>
<tr>
<td>WR5-800-10-[ ]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H 46 W 63</td>
<td>0.17</td>
</tr>
<tr>
<td>WR5-900-10-[ ]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H 53 W 64</td>
<td>0.18</td>
</tr>
</tbody>
</table>

### Operating Temperature Range

-150°F to 500°F (-100°C to 260°C)

### MOUNTING HARDWARE

#### IMPERIAL

- **COUNTERSINK**
- **HOLE THREADED**

#### METRIC

- **COUNTERSINK**
- **HOLE THREADED**

*Maximum recommended torque for threaded insert is 38 in.-lbs. (4.3 Nm)*

### Standard Materials & Finishes*

- **Cable**: Stranded 300 Series Stainless Steel
- **Retaining Bars**: Aluminum Alloy, treated per MIL-C-5541

*Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.*

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**MOUNTING OPTIONS**

- **S**: Thru Hole
- **A(M)**: Thru Hole Countersink Hole
- **B(M)**: Countersink Hole
- **C(M)**: Thru Hole Threaded
- **D(M)**: Threaded Countersink Hole
- **E(M)**: Threaded Hole

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**U.S. Patent 9,649,285**

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**See Mounting Options**

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**See Rotated 90° CW for clarity**

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**View Rotated**

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**H: 5.00 (127.0) W: 4.500 (114.3)**
WR5 Series

Load vs. Deflection

Natural Frequency

Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
WR6 Series

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION ( )</th>
<th>H (in.)</th>
<th>W (in.)</th>
<th>UNIT WEIGHT (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR6-200-10-[]</td>
<td>D</td>
<td>1.20</td>
<td>1.40</td>
<td>0.42</td>
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<tr>
<td>WR6-300-10-[]</td>
<td>B, D, E</td>
<td>1.30</td>
<td>1.50</td>
<td>0.43</td>
</tr>
<tr>
<td>WR6-400-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>1.50</td>
<td>1.70</td>
<td>0.47</td>
</tr>
<tr>
<td>WR6-500-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>1.60</td>
<td>1.80</td>
<td>0.49</td>
</tr>
<tr>
<td>WR6-600-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>1.70</td>
<td>1.90</td>
<td>0.54</td>
</tr>
<tr>
<td>WR6-700-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>2.00</td>
<td>2.30</td>
<td>0.57</td>
</tr>
<tr>
<td>WR6-800-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>2.13</td>
<td>2.94</td>
<td>0.59</td>
</tr>
<tr>
<td>WR6-850-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>2.45</td>
<td>3.45</td>
<td>0.61</td>
</tr>
<tr>
<td>WR6-900-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>3.20</td>
<td>4.20</td>
<td>0.63</td>
</tr>
<tr>
<td>WR6-950-10-[]</td>
<td>S, A, B, C, D, E</td>
<td>2.45</td>
<td>3.45</td>
<td>0.61</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION ( )</th>
<th>H (mm)</th>
<th>W (mm)</th>
<th>UNIT WEIGHT (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR6-200-10-[]</td>
<td>CM</td>
<td>30</td>
<td>38</td>
<td>0.19</td>
</tr>
<tr>
<td>WR6-300-10-[]</td>
<td>DM</td>
<td>33</td>
<td>38</td>
<td>0.20</td>
</tr>
<tr>
<td>WR6-400-10-[]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>39</td>
<td>43</td>
<td>0.21</td>
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<tr>
<td>WR6-500-10-[]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>41</td>
<td>46</td>
<td>0.22</td>
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<tr>
<td>WR6-600-10-[]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>43</td>
<td>48</td>
<td>0.25</td>
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<tr>
<td>WR6-700-10-[]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>51</td>
<td>58</td>
<td>0.26</td>
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<tr>
<td>WR6-800-10-[]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>54</td>
<td>75</td>
<td>0.27</td>
</tr>
<tr>
<td>WR6-900-10-[]</td>
<td>S, AM, CM, DM, EM</td>
<td>62</td>
<td>88</td>
<td>0.28</td>
</tr>
<tr>
<td>WR6-950-10-[]</td>
<td>S, AM, CM, DM, EM</td>
<td>81</td>
<td>107</td>
<td>0.29</td>
</tr>
</tbody>
</table>

**MOUNTING OPTIONS**

- **S**
  - Thru Hole
  - Countersunk

- **A(M)**
  - Thru Hole
  - Countersunk

- **B(M)**
  - Countersunk

- **C(M)**
  - Thru Hole

- **D(M)**
  - Thru Hole

- **E(M)**
  - Thru Hole

**MOUNTING HARDWARE**

- **IMPERIAL**
  - 1/4-20
  - 82° COUNTERSINK

- **METRIC**
  - M6 (x 1.0)
  - 90° COUNTERSINK

*Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.*

**Internet:** www.enidine.com  **Phone:** 1-800-852-8508  **Fax:** 1-716-562-1909

**Operating Temperature Range**

-150°F to 500°F (~-100°C to 260°C)
WR6 Series

Load vs. Deflection

Load vs. Natural Frequency

Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
### WR8 Series

#### Imperial

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR8-200-08-</td>
<td>S, A, B, C, D, E</td>
<td>H: 1.90 W: 2.20</td>
<td>0.84</td>
</tr>
<tr>
<td>WR8-400-08-</td>
<td>S, A, B, C, D, E</td>
<td>H: 2.13 W: 2.50</td>
<td>0.90</td>
</tr>
<tr>
<td>WR8-500-08-</td>
<td>S, A, B, C, D, E</td>
<td>H: 2.31 W: 2.80</td>
<td>0.94</td>
</tr>
<tr>
<td>WR8-600-08-</td>
<td>S, A, B, C, D, E</td>
<td>H: 2.50 W: 3.13</td>
<td>1.04</td>
</tr>
<tr>
<td>WR8-700-08-</td>
<td>S, A, B, C, D, E</td>
<td>H: 2.63 W: 3.50</td>
<td>1.14</td>
</tr>
<tr>
<td>WR8-800-08-</td>
<td>S, A, B, C, D, E</td>
<td>H: 2.83 W: 3.95</td>
<td>1.20</td>
</tr>
<tr>
<td>WR8-850-08-</td>
<td>S, A, B, C, D, E</td>
<td>H: 3.25 W: 4.35</td>
<td>1.30</td>
</tr>
</tbody>
</table>

**维度和重量**：

- **HD**
- **W**
- **重量**：单位为磅 (lbs.)

**公制**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR8-200-08-</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H: 48 W: 56</td>
<td>0.38</td>
</tr>
<tr>
<td>WR8-400-08-</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H: 54 W: 64</td>
<td>0.41</td>
</tr>
<tr>
<td>WR8-500-08-</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H: 59 W: 71</td>
<td>0.43</td>
</tr>
<tr>
<td>WR8-600-08-</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H: 64 W: 80</td>
<td>0.47</td>
</tr>
<tr>
<td>WR8-700-08-</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H: 64 W: 89</td>
<td>0.52</td>
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<tr>
<td>WR8-800-08-</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H: 67 W: 95</td>
<td>0.54</td>
</tr>
<tr>
<td>WR8-850-08-</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H: 67 W: 100</td>
<td>0.57</td>
</tr>
<tr>
<td>WR8-900-08-</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H: 63 W: 108</td>
<td>0.59</td>
</tr>
</tbody>
</table>

**公制**

- **HD**
- **W**
- **重量**：单位为公斤 (Kg)

**注释**：尺寸单位为英寸 (mm)。

- 最大推荐扭矩为带螺纹插入的38英寸·磅 (4.3 Nm)。

#### MOUNTING OPTIONS

- **S**
- **A(M)**
- **B(M)**
- **C(M)**
- **D(M)**
- **E(M)**

**MOUNTING HARDWARE**

**IMPERIAL**

- **Metric**

**Operating Temperature Range**

- **US Patent 5,549,285**

- **U.S. Patent 5,549,285**

**Standard Materials & Finishes**

- **Note:** 非标准材料和表面处理可联系 Enidine 满足您的具体要求。

**Operating Temperature Range**

- **-150°F to 500°F (-100°C to 260°C)**

**互联网地址：www.enidine.com 电话：1-800-852-8508 传真：1-716-662-1909**
Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
WR12 Series 6 LOOP

**Imperial**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>H (in.)</td>
<td>W (in.)</td>
</tr>
<tr>
<td>WR12-206-06-[]</td>
<td>S, A, B, C, D, E</td>
<td>2.50</td>
<td>3.51</td>
</tr>
<tr>
<td>WR12-306-06-[]</td>
<td>S, A, B, C, D, E</td>
<td>2.90</td>
<td>3.50</td>
</tr>
<tr>
<td>WR12-406-06-[]</td>
<td>S, A, B, C, D, E</td>
<td>3.00</td>
<td>4.13</td>
</tr>
<tr>
<td>WR12-506-06-[]</td>
<td>S, A, B, C, D, E</td>
<td>3.25</td>
<td>4.25</td>
</tr>
<tr>
<td>WR12-606-06-[]</td>
<td>S, A, B, C, D, E</td>
<td>3.50</td>
<td>4.25</td>
</tr>
<tr>
<td>WR12-706-06-[]</td>
<td>S, A, B, C, D, E</td>
<td>4.13</td>
<td>4.75</td>
</tr>
<tr>
<td>WR12-806-06-[]</td>
<td>S, A, B, C, D, E</td>
<td>4.25</td>
<td>5.50</td>
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</table>

**Metric**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>H (mm)</td>
<td>W (mm)</td>
</tr>
<tr>
<td>WR12-206-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>71</td>
<td>84</td>
</tr>
<tr>
<td>WR12-306-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>74</td>
<td>89</td>
</tr>
<tr>
<td>WR12-406-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>76</td>
<td>105</td>
</tr>
<tr>
<td>WR12-506-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>83</td>
<td>108</td>
</tr>
<tr>
<td>WR12-606-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>89</td>
<td>108</td>
</tr>
<tr>
<td>WR12-706-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>105</td>
<td>121</td>
</tr>
<tr>
<td>WR12-806-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>108</td>
<td>140</td>
</tr>
</tbody>
</table>

**Mounting Options**

- S(M) Thru Hole
- A(M) Thru Hole Countersink
- B(M) Countersink Hole
- C(M) Thru Hole Threaded
- D(M) Threaded
- E(M) Threaded Countersink Hole

**Mounting Hardware**

- **Imperial**: 1/4-28 M6 (x 1.0)
- **Metric**: M6 (x 1.0)

**COUNTERSINK 90º CW for clarity**

**Standard Materials & Finishes**

- Cable: Stranded 300 Series Stainless Steel
- Retaining Bars: Aluminum Alloy, treated per MIL-C-5541
- Assembly Hardware (WR12 – WR40): Alloy Steel, Zinc Plated

**Operating Temperature Range**

- -150°F to 550°F (-100°C to 280°C)

**Note:** Dimensions are in inches (mm).
**WR12 Series**

**6 LOOP**

---

**Load vs. Deflection**

**Compression**

**Deflection (mm)**

- Load (lbs.)
- 0, 10, 20, 30, 40, 50, 60, 70

**45° Compression / Roll**

- Load (lbs.)
- 0, 10, 20, 30, 40, 50, 60, 70

**Shear / Roll**

- Load (lbs.)
- 0, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70

---

**Load vs. Natural Frequency**

**Compression**

- Load (lbs.)
- 0, 5, 10, 15, 20

**45° Compression / Roll**

- Load (lbs.)
- 0, 5, 10, 15, 20

**Shear / Roll**

- Load (lbs.)
- 0, 5, 10, 15

---

**Notes:**

A. Natural frequency curves based on 1G input.

B. Do not extrapolate plotted curves.

C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.

---

**KEY**

1. WR12-206-06
2. WR12-306-06
3. WR12-406-06
4. WR12-506-06
5. WR12-606-06
6. WR12-706-06
7. WR12-806-06

---

Internet: www.enidine.com  Phone: 1-800-852-8508  Fax: 1-716-662-1909
## WR12 Series

### Imperial

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR12-200-08-[ ]</td>
<td>S, A, B, C, D, E</td>
<td>H (in.)</td>
<td>W (in.)</td>
</tr>
<tr>
<td>WR12-300-08-[ ]</td>
<td>S, A, B, C, D, E</td>
<td>2.60</td>
<td>3.31</td>
</tr>
<tr>
<td>WR12-400-08-[ ]</td>
<td>S, A, B, C, D, E</td>
<td>3.00</td>
<td>4.13</td>
</tr>
<tr>
<td>WR12-500-08-[ ]</td>
<td>S, A, B, C, D, E</td>
<td>3.25</td>
<td>4.25</td>
</tr>
<tr>
<td>WR12-600-08-[ ]</td>
<td>S, A, B, C, D, E</td>
<td>3.50</td>
<td>4.25</td>
</tr>
<tr>
<td>WR12-700-08-[ ]</td>
<td>S, A, B, C, D, E</td>
<td>4.13</td>
<td>4.75</td>
</tr>
<tr>
<td>WR12-800-08-[ ]</td>
<td>S, A, B, C, D, E</td>
<td>4.65</td>
<td>5.50</td>
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</table>

### Metric

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
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<tbody>
<tr>
<td>WR12-200-08-[ ]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>H (mm)</td>
<td>W (mm)</td>
</tr>
<tr>
<td>WR12-300-08-[ ]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>71</td>
<td>84</td>
</tr>
<tr>
<td>WR12-400-08-[ ]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>74</td>
<td>88</td>
</tr>
<tr>
<td>WR12-500-08-[ ]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>76</td>
<td>105</td>
</tr>
<tr>
<td>WR12-600-08-[ ]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>83</td>
<td>108</td>
</tr>
<tr>
<td>WR12-700-08-[ ]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>89</td>
<td>108</td>
</tr>
<tr>
<td>WR12-800-08-[ ]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>108</td>
<td>140</td>
</tr>
</tbody>
</table>

### MOUNTING OPTIONS

- **S(M)**: Thru Hole
- **A(M)**: Thru Hole Countersunk
- **B(M)**: Countersunk Hole
- **C(M)**: Thru Hole Threaded
- **D(M)**: Threaded
- **E(M)**: Threaded Countersunk Hole

### Operating Temperature Range

-150°F to 550°F (-100°C to 280°C)

### Standard Materials & Finishes

- Cable: Stranded 300 Series Stainless Steel
- Retaining Bars: Aluminum Alloy, treated per MIL-C-5541
- Assembly Hardware (WR12 – WR40): Alloy Steel, Zinc Plated

### Maximum recommended torque for threaded bar is 100 in.-lbs. (20 Nm)

**Note:** Dimensions are in inches (mm).

**See Mounting Options**
WR12 Series

Load vs. Deflection

Load vs. Natural Frequency

Notes: A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
WR16 Series 6 LOOP

Note: Dimensions are in inches (mm).

### Imperial

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR16-206-06-[]</td>
<td>S, A, B, C, D, E</td>
<td>H (in.)</td>
<td>W (lbs.)</td>
</tr>
<tr>
<td>WR16-306-06-[]</td>
<td>S, A, B, C, D, E</td>
<td>3.00</td>
<td>3.63</td>
</tr>
<tr>
<td>WR16-406-06-[]</td>
<td>S, A, B, C, D, E</td>
<td>3.25</td>
<td>4.00</td>
</tr>
<tr>
<td>WR16-606-06-[]</td>
<td>S, A, B, C, D, E</td>
<td>3.50</td>
<td>4.13</td>
</tr>
<tr>
<td>WR16-706-06-[]</td>
<td>S, A, B, C, D, E</td>
<td>3.75</td>
<td>4.75</td>
</tr>
<tr>
<td>WR16-806-06-[]</td>
<td>S, A, B, C, D, E</td>
<td>4.25</td>
<td>5.25</td>
</tr>
<tr>
<td>WR16-856-06-[]</td>
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<td>4.90</td>
<td>5.85</td>
</tr>
<tr>
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<td>S, A, B, C, D, E</td>
<td>5.40</td>
<td>6.13</td>
</tr>
</tbody>
</table>

### Metric

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR16-206-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>H (mm)</td>
<td>W (kg)</td>
</tr>
<tr>
<td>WR16-306-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>76</td>
<td>92</td>
</tr>
<tr>
<td>WR16-406-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>83</td>
<td>102</td>
</tr>
<tr>
<td>WR16-606-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>89</td>
<td>106</td>
</tr>
<tr>
<td>WR16-706-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>95</td>
<td>121</td>
</tr>
<tr>
<td>WR16-806-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>108</td>
<td>133</td>
</tr>
<tr>
<td>WR16-856-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>124</td>
<td>144</td>
</tr>
<tr>
<td>WR16-906-06-[]</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>137</td>
<td>156</td>
</tr>
</tbody>
</table>

### MOUNTING OPTIONS

- **S(M)**: Thru Hole
- **A(M)**: Thru Hole Countersunk
- **B(M)**: Countersunk Countersunk Hole
- **C(M)**: Thru Hole Threaded
- **D(M)**: Threaded
- **E(M)**: Threaded Countersunk

### MOUNTING HARDWARE

**IMPERIAL**: 1/4-28 (Threaded Only) M8 (x 1,25)
**METRIC**: 5/16-24 (All Others) M8 (x 1,25)

8° COUNTERSINK 90° COUNTERSINK

Maximum recommended torque for threaded bar is 115 in.-lbs. (20 Nm)

### Standard Materials & Finishes*

- Cable: Stranded 300 Series Stainless Steel
- Retaining Bars: Aluminum Alloy, treated per MIL-C-5541
- Assembly Hardware (WR12 – WR40): Alloy Steel, Zinc Plated

### Operating Temperature Range

-150°F to 500°F (-100°C to 260°C)

* Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.
**Notes:**
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
### WR16 Series

**Imperial**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>200-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>H (in.)</td>
<td>W (in.)</td>
</tr>
<tr>
<td>300-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>3.00</td>
<td>4.00</td>
</tr>
<tr>
<td>400-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>3.50</td>
<td>4.13</td>
</tr>
<tr>
<td>600-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>4.25</td>
<td>5.25</td>
</tr>
<tr>
<td>700-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>4.90</td>
<td>5.65</td>
</tr>
<tr>
<td>800-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>5.40</td>
<td>6.13</td>
</tr>
<tr>
<td>850-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>6.10</td>
<td>7.70</td>
</tr>
</tbody>
</table>

**Metric**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>200-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>H (mm)</td>
<td>W (mm)</td>
</tr>
<tr>
<td>300-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>76</td>
<td>92</td>
</tr>
<tr>
<td>400-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>89</td>
<td>105</td>
</tr>
<tr>
<td>600-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>95</td>
<td>121</td>
</tr>
<tr>
<td>700-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>108</td>
<td>133</td>
</tr>
<tr>
<td>800-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>124</td>
<td>144</td>
</tr>
<tr>
<td>850-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>137</td>
<td>156</td>
</tr>
<tr>
<td>900-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>155</td>
<td>180</td>
</tr>
</tbody>
</table>

### MOUNTING OPTIONS

- **S(M)**: Three Hole
- **A(M)**: Three Hole Countersunk
- **B(M)**: Countersunk Hole
- **C(M)**: Three Hole Threaded
- **D(M)**: Threaded
- **E(M)**: Threaded Countersunk Hole

### MOUNTING HARDWARE

**IMPENAL**

- 1/4-28 (Threaded Only) M8 (x 1.25)
- 5/16-24 (All Others) M8 (x 1.25)
- 90º COUNTERSINK 90º COUNTERSINK

**METRIC**

- Maximum recommended torque for threaded bar is 115 in.-lbs. (20 Nm)

### Standard Materials & Finishes*

- Cable: Stranded 300 Series Stainless Steel Retaining Bars: Aluminum Alloy, treated per MIL-C-5541
- Operating Hardware (WR12 – WR40): Alloy Steel, Zinc Plated

### Operating Temperature Range

-150ºF to 500ºF (-100ºC to 260ºC)

---

*Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.
WR16 Series

Load vs. Deflection

Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.

Internet: www.enidine.com Phone: 1-800-852-8508 Fax: 1-716-662-1909
**WR20 Series**

**Imperial**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>H (in.)</th>
<th>W (in.)</th>
<th>UNIT WEIGHT (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR20-200-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>3.50</td>
<td>4.00</td>
<td>6.62</td>
</tr>
<tr>
<td>WR20-300-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>3.80</td>
<td>4.40</td>
<td>7.06</td>
</tr>
<tr>
<td>WR20-400-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>4.00</td>
<td>4.75</td>
<td>7.50</td>
</tr>
<tr>
<td>WR20-600-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>4.30</td>
<td>5.31</td>
<td>8.16</td>
</tr>
<tr>
<td>WR20-700-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>4.70</td>
<td>6.00</td>
<td>8.83</td>
</tr>
<tr>
<td>WR20-800-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>5.00</td>
<td>6.50</td>
<td>9.50</td>
</tr>
<tr>
<td>WR20-900-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>5.30</td>
<td>7.00</td>
<td>10.20</td>
</tr>
</tbody>
</table>

**Metric**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>H (mm)</th>
<th>W (mm)</th>
<th>UNIT WEIGHT (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR20-200-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>99</td>
<td>102</td>
<td>3.00</td>
</tr>
<tr>
<td>WR20-300-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>102</td>
<td>112</td>
<td>3.20</td>
</tr>
<tr>
<td>WR20-400-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>102</td>
<td>121</td>
<td>3.40</td>
</tr>
<tr>
<td>WR20-600-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>100</td>
<td>125</td>
<td>3.70</td>
</tr>
<tr>
<td>WR20-700-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>119</td>
<td>152</td>
<td>4.00</td>
</tr>
<tr>
<td>WR20-800-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>127</td>
<td>165</td>
<td>4.31</td>
</tr>
<tr>
<td>WR20-900-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>135</td>
<td>178</td>
<td>4.63</td>
</tr>
</tbody>
</table>

**Operating Temperature Range**

-150°F to 500°F (-100°C to 260°C)

**Standard Materials & Finishes**

- Cable: Stranded 300 Series Stainless Steel
- Retaining Bars: Aluminum Alloy, treated per MIL-C-5041
- Assembly Hardware (WR12 – WR40): Alloy Steel, Zinc Plated

*Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.*

**Mounting Options**

<table>
<thead>
<tr>
<th>S</th>
<th>A(M)</th>
<th>B(M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threaded</td>
<td>Threaded Countersunk Hole</td>
<td>Countersunk Hole</td>
</tr>
<tr>
<td>C(M)</td>
<td>D(M)</td>
<td>E(M)</td>
</tr>
<tr>
<td>Threaded</td>
<td>Threaded</td>
<td>Threaded Countersunk Hole</td>
</tr>
</tbody>
</table>

**Mounting Hardware**

<table>
<thead>
<tr>
<th>IMPERIAL</th>
<th>METRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8-24</td>
<td>M10 (1.5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>90° COUNTERSINK</th>
<th>90° COUNTERSINK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum recommended torque for threaded bar is 415 in.-lbs. (50 Nm)</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Dimensions are in inches (mm).
WR20 Series

Load vs. Deflection

Load vs. Natural Frequency

Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
**WR28 Series**

Note: Dimensions are in inches (mm).

### Imperial

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION [ ]</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR28-200-08-[ ]</td>
<td>S, C, D</td>
<td>H: 5.25  W: 5.50</td>
<td>16.5</td>
</tr>
</tbody>
</table>

### Metric

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION [ ]</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR28-200-08-[ ]</td>
<td>C, D</td>
<td>H: 133  W: 140</td>
<td>8.40</td>
</tr>
</tbody>
</table>

**Mounting Options**

- **S** Thru Hole
- **A(M) **Thru Hole Countersunk Hole
- **B(M) **Countersunk Hole
- **C(M) **Thru Hole Threaded
- **D(M) **Threaded Countersunk Hole
- **E(M) **Threaded Hole

**Mounting Hardware**

- **IMPERIAL**
  - 1/2-13 M12 (x 1.75)
  - 90° COUNTERSINK 90° COUNTERSINK

- **METRIC**
  - M12 (x 1.75)

**Standard Materials & Finishes**

- Cable: Stranded 300 Series Stainless Steel
- Retaining Bars: Aluminum Alloy, treated per MIL-C-5541
- Assembly Hardware (WR12 – WR40): Alloy Steel, Zinc Plated

**Operating Temperature Range**

- -150°F to 500°F (-100°C to 260°C)

*Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.*
WR28 Series

Load vs. Deflection

Load (lbs.) vs. Natural Frequency

Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
### WR36 Series

#### Imperial

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR36-200-08</td>
<td>S, A, B, C, D, E</td>
<td>H (in.) W (in.)</td>
<td>lbs.</td>
</tr>
<tr>
<td>WR36-400-08</td>
<td>S, A, B, C, D, E</td>
<td>7.00 8.50</td>
<td>46</td>
</tr>
<tr>
<td>WR36-600-08</td>
<td>S, A, B, C, D, E</td>
<td>8.50 9.50</td>
<td>53</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR36-200-08</td>
<td>S, A, B, C, D, E</td>
<td>M18 (x 2.5)</td>
<td></td>
</tr>
<tr>
<td>WR36-400-08</td>
<td>S, A, B, C, D, E</td>
<td>M18 (x 2.5)</td>
<td></td>
</tr>
<tr>
<td>WR36-600-08</td>
<td>S, A, B, C, D, E</td>
<td>M18 (x 2.5)</td>
<td></td>
</tr>
</tbody>
</table>

#### Metric

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR36-200-08</td>
<td>S, A, B, C, D, E</td>
<td>H (mm) W (mm)</td>
<td>Kg</td>
</tr>
<tr>
<td>WR36-400-08</td>
<td>S, A, B, C, D, E</td>
<td>178 216</td>
<td>20,9</td>
</tr>
<tr>
<td>WR36-600-08</td>
<td>S, A, B, C, D, E</td>
<td>216 241</td>
<td>24,0</td>
</tr>
</tbody>
</table>

### MOUNTING OPTIONS

- **S**: Thru Hole
- **A(M)**: Thru Hole Countersunk Hole
- **B(M)**: Countersunk Hole
- **C(M)**: Thru Hole Threaded
- **D(M)**: Threaded
- **E(M)**: Threaded Countersunk Hole

### MOUNTING HARDWARE

#### Imperial

- 3/8-10
- Metric: 6/18 (x 2.5)
- 5/16 COUNTERSINK 90° COUNTERSINK

Maximum recommended torque for threaded bar is 300 ft.-lbs. (300 Nm)

#### Standard Materials & Finishes*

- Cable: Stranded 300 Series Stainless Steel
- Retaining Bars: Aluminum Alloy, treated per MIL-C-5541
- Assembly Hardware (WR12 – WR40): Alloy Steel, Zinc Plated

#### Operating Temperature Range

- -150°F to 500°F (-100°C to 260°C)

* Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.
WR36 Series

Load vs. Deflection

Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.

Internet: www.enidine.com Phone: 1-800-852-8508 Fax: 1-716-662-1909
### WR40 Series

**Imperial**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR40-200-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>H (in.)</td>
<td>W (in.)</td>
</tr>
<tr>
<td>WR40-400-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>7.00</td>
<td>8.25</td>
</tr>
</tbody>
</table>

**Metric**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR40-200-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>H (mm)</td>
<td>W (mm)</td>
</tr>
<tr>
<td>WR40-400-08-[]</td>
<td>S, A, B, C, D, E</td>
<td>178</td>
<td>210</td>
</tr>
</tbody>
</table>

**Mounting Options**

- **S**: Thru Hole
- **A(M)**: Thru Hole Countersunk
- **B(M)**: Countersunk Hole
- **C(M)**: Thru Hole Threaded
- **D(M)**: Threaded
- **E(M)**: Threaded Countersunk Hole

**Mounting Hardware**

<table>
<thead>
<tr>
<th>IMPERIAL</th>
<th>METRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8-16</td>
<td>M10 x 1.5</td>
</tr>
</tbody>
</table>

**Standard Materials & Finishes**

- Cable: Stranded 300 Series Stainless Steel
- Retaining Bars: Aluminum Alloy, treated per MIL-C-5541
- Assembly Hardware (WR12 – WR40): Alloy Steel, Zinc Plated

**Operating Temperature Range**

-150°F to 500°F (-100°C to 260°C)

*Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.
### WR40 Series

**Load vs. Deflection**

**Load vs. Natural Frequency**

**Notes:**
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
Selecting An Enidine Compact Wire Rope Isolator

SIZING INSTRUCTIONS - VIBRATION ISOLATION

Selecting appropriate isolators for shock is based on the Compact Wire Rope Isolator’s average stiffness at the required dynamic deflection (Dmin). Follow the steps below to achieve a recommended Compact Wire Rope Isolator selection.

STEP 1: Fill out Part I and Part III of the Application Worksheet.

STEP 2: Refer to the Load vs. Deflection curves for the required loading orientation. Locate curves capable of the Minimum Dynamic Deflection (Dmin) calculated from the worksheet. Find a curve that is on or slightly under the Average Force (Favg) at the Average Deflection (davg) calculated from the worksheet.

STEP 3: Specify the required mounting option suffix to complete the part number. (Please refer to available mounting options as indicated on each Compact Wire Rope Isolator series data page.)

If the desired system natural frequency is known, refer to the appropriate Load vs. Natural Frequency curves to determine the recommended Compact Wire Rope Isolator model. If the preferred system natural frequency is unknown, follow the steps below to achieve a recommended Compact Wire Rope Isolator selection.

STEP 1: Fill out Part I and Part II of the Application Worksheet.

STEP 2: Refer to the Load vs. Natural Frequency curves for the required loading orientation. Use the System Natural Frequency (fn) calculated from the worksheet to select the smallest Compact Wire Rope Isolator model capable of the static load (W).

STEP 3: Specify the required mounting option suffix to complete the part number. (Please refer to available mounting options as indicated on each CR series data page.)

APPLICATION WORKSHEET - INPUTS IMPERIAL/METRIC

PART I: SYSTEM DATA:
1. Total Load (Wt):
   \[ W = \frac{WT}{9.81} \]  =  ________ lbs.
   \[ W = \frac{WT}{9.81} \]  =  ________ N

2. Number of Isolators (n):
   \[ n = \frac{W}{100} \]  =  ________

3. Static Load per Isolator (W):
   \[ W = \frac{WT}{n} \]  =  ________ lbs.

4. Load Axis: Compression
   Shear or Roll
   45º Compression/Roll

PART II: VIBRATION SIZING:
1. Input Excitation Frequency (f) = ________ Hz (rpm)

2. System Natural Frequency for 80% isolation:
   \[ f_n = \frac{f}{3.0} \]  =  ________ Hz
   \[ f_n = \frac{f}{3.0} \]  =  ________ Hz

* The System Natural Frequency (f_n) must lie on a published curve. The published natural frequencies are based on a 1G input condition. Random Vibration inputs: Consult Enidine for recommendations.

PART III: SHOCK SIZING:
1. Maximum Allowable Transmitted G Load (Gt): ________ G’s

2. Shock Input Velocity:
   \[ V = \frac{g}{h} \]  =  ________ in./sec.
   \[ V = \frac{g}{h} \]  =  ________ m/sec.

a) Free Fall Impact:
   \[ g = 386 \text{ in./sec}^2 \text{ or } 9.81 \text{ m/sec}^2 \]
   \[ h = \text{Drop Height (in. or m)} \]

b) Half-Sine Acceleration Input:
   \[ A_0 = \text{Peak Acceleration (G’s)} \]
   \[ t_0 = \text{Duration (seconds)} \]

3. Min. Response Deflection:
   \[ D_{\text{avg}} = \frac{V^2}{g (Gt - 1)} \]  =  ________ in.
   \[ D_{\text{avg}} = \frac{V^2}{g (Gt - 1)} \]  =  ________ mm

4. Average Force:
   \[ F_{\text{avg}} = \frac{W V^2}{2 D_{\text{avg}}} \]  =  ________ lbs.
   \[ F_{\text{avg}} = \frac{W V^2}{2 D_{\text{avg}}} \]  =  ________ N

5. Average Deflection:
   \[ d_{\text{avg}} = \frac{D_{\text{avg}}}{2} \]  =  ________ in.
   \[ d_{\text{avg}} = \frac{D_{\text{avg}}}{2} \]  =  ________ mm

Ordering Information

Fax, phone, or mail your order to the nearest Enidine/distributor location, Attention: Sales Department (see back cover for listing of Enidine locations).

EXAMPLE:

20 CR6 # 100 ( )


If you have special requirements, send us your application and Enidine will contact you with recommendations for a solution.
**VIBRATION ISOLATION:**

A 6-lb. electronics box is failing due to a 40 Hz vibration input. Only .75 inches of space exists around the unit for an isolator. To control the damaging effects of vibration, the box shall be isolated using four (4) isolators mounted in the compression load axis with imperial, socket head cap screws. The isolators shall be located symmetrically about the pump’s center of gravity.

**Step 1:** From Part I and Part II of the Application Worksheet.

\[ W = \frac{6}{4} = 1.50 \text{ lbs.} \quad F_i = 40 \text{ Hz} \]

**Step 2:** Determine which isolators match the desired height requirement. The CR1-100, CR2-200, and the CR3-100 each have a height of .75 inches.

**Step 3:** Referring to the Compression Load vs. Natural Frequency curves for an isolator capable of a maximum static load of 1.5 lbs., and a System Natural Frequency of approximately 13.3 Hz, yields a recommended isolator of CR2-200.

**Step 4:** From the Available Mounting Options column, verify that a “D” mounting style is available (for threaded holes in both mount bars). Adding the mounting option suffix to the model number gives the complete part number of CR2-200-D.

**SHOCK ISOLATION:**

A 1.31-lb. computer hard drive is mounted inside a vehicle and must withstand a half-sine shock input of 30G’s, 5 in./sec. The hard drive shall be suspended inside of the vehicle using four (4) isolators (2 per side) in a roll loading axis with imperial, socket head cap screws. The hard drive can withstand a maximum shock response of 10G’s. The isolators shall be installed symmetrically about the equipment’s center of gravity.

**Step 1:** From Part I and Part III of the Application Worksheet.

\[ V = \frac{2 \times 386}{\pi} \times (30)(.005) = 36.86 \text{ in./sec.} \]
\[ F_{avg} = \frac{(1.33)(36.86)^2}{2 	imes 386(0.39)} = 1.49 \text{ lbs.} \]
\[ D_{max} = \frac{36.86^2}{386(10 - 1)} = .39 \text{ inches} \]
\[ d_{avg} = \frac{.39}{2} = .195 \text{ inches} \]

**Step 2:** Referring to the Shear/Roll Load vs. Deflection curves for an isolator capable of a maximum deflection of .39 inches or greater, and a curve point that is at or slightly below a force of 1.49 lbs., at .195 inches of deflection, yields a recommended isolator selection of CR3-300.

**Step 3:** From the Available Mounting Options column, verify that a “D” mounting style is available (for threaded holes in both mount bars). Adding the mounting option suffix to the model number, gives the complete part number of CR3-300-D.

---

**Performance Considerations**

The following should be considered when selecting Enidine Wire Rope Isolator products:

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

**Stabilizers:**
- Consider use of stabilizers when Height vs. Width ratio is greater than 2.

**Natural Frequency Curve Basis:**
- Published natural frequency curves are based on a 1G input condition. Natural frequency shifts may result from various input levels.

**Severe Input Considerations:**
- Increase diameter of the wire rope cable.
- Increase height of the Compact Wire Rope Isolators.
- Consult Enidine.

---

**Selecting An Enidine Compact Wire Rope Isolator**

**Performance Considerations**

The following should be considered when selecting Enidine Wire Rope Isolator products:

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

**Stabilizers:**
- Consider use of stabilizers when Height vs. Width ratio is greater than 2.

**Natural Frequency Curve Basis:**
- Published natural frequency curves are based on a 1G input condition. Natural frequency shifts may result from various input levels.

**Severe Input Considerations:**
- Increase diameter of the wire rope cable.
- Increase height of the Compact Wire Rope Isolators.
- Consult Enidine.
CR1 Series

Note: Dimensions are in inches (mm).

Imperial

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT (oz.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR1-100-[]</td>
<td>S, A, B, C, D, E</td>
<td>0.66</td>
<td>0.73</td>
</tr>
<tr>
<td>CR1-200-[]</td>
<td>S, A, B, C, D, E</td>
<td>0.75</td>
<td>0.79</td>
</tr>
<tr>
<td>CR1-300-[]</td>
<td>S, A, B, C, D, E</td>
<td>0.90</td>
<td>0.91</td>
</tr>
<tr>
<td>CR1-400-[]</td>
<td>S, A, B, C, D, E</td>
<td>1.04</td>
<td>1.03</td>
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</tbody>
</table>

Metric

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR1-100-[]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>CR1-200-[]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>CR1-300-[]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>CR1-400-[]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>26</td>
<td>26</td>
</tr>
</tbody>
</table>

MOUNTING OPTIONS

- **S**: Thru Hole
- **A(M)**: Countersunk Hole
- **B(M)**: Countersunk Hole
- **C(M)**: Threaded
- **D(M)**: Threaded
- **E(M)**: Threaded

MOUNTING HARDWARE

- **IMPERIAL**: #4-40 M3 (x 0.5)
- **METRIC**: M3 (x 0.5)

Maximum recommended torque for threaded bar is 10 in.-lbs. (1.2 Nm)

Standard Materials & Finishes*

- Cable: Stranded 300 Series Stainless Steel
- Retaining Bars: Aluminum Alloy, treated per MIL-C-5641

Operating Temperature Range

-150°F to 550°F (-100°C to 260°C)

* Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.
CR1 Series

Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
CR2 Series

Note: Dimensions are in inches (mm).

**Imperial**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR2-100</td>
<td>S, A, B, C, D, E</td>
<td>H 0.64</td>
<td>W 0.78</td>
</tr>
<tr>
<td>CR2-200</td>
<td>S, A, B, C, D, E</td>
<td>H 0.75</td>
<td>W 0.83</td>
</tr>
<tr>
<td>CR2-300</td>
<td>S, A, B, C, D, E</td>
<td>H 0.89</td>
<td>W 0.94</td>
</tr>
<tr>
<td>CR2-400</td>
<td>S, A, B, C, D, E</td>
<td>H 1.07</td>
<td>W 1.08</td>
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</table>

**Metric**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR2-100</td>
<td>S, A, B, C, D, E</td>
<td>H 16</td>
<td>W 20</td>
</tr>
<tr>
<td>CR2-200</td>
<td>S, A, B, C, D, E</td>
<td>H 19</td>
<td>W 21</td>
</tr>
<tr>
<td>CR2-300</td>
<td>S, A, B, C, D, E</td>
<td>H 23</td>
<td>W 24</td>
</tr>
<tr>
<td>CR2-400</td>
<td>S, A, B, C, D, E</td>
<td>H 27</td>
<td>W 27</td>
</tr>
</tbody>
</table>

**MOUNTING OPTIONS**

- **S**: Thru Hole
- **A(M)**: Countersunk Hole
- **B(M)**: Countersunk Hole
- **C(M)**: Thru Hole
- **D(M)**: Thru Hole
- **E(M)**: Countersunk Hole

**MOUNTING HARDWARE**

- **IMPERIAL**: #4-40 M3 (x 0.5)
- **METRIC**: 62° COUNTERSINK 90° COUNTERSINK

Maximum recommended torque for threaded bar is 10 in.-lbs. (1.2 Nm)

**Operating Temperature Range**

-150°F to 500°F (-100°C to 260°C)

* Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.

U.S. Patent 6,290,217
Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
# CR3 Series

![View Rotated 90° CW for clarity](image)

Note: Dimensions are in inches (mm).

## Imperial

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT (oz.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR3-100-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 0.75</td>
<td>W: 0.88</td>
</tr>
<tr>
<td>CR3-200-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 0.90</td>
<td>W: 0.95</td>
</tr>
<tr>
<td>CR3-300-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 1.06</td>
<td>W: 1.06</td>
</tr>
<tr>
<td>CR3-400-[]</td>
<td>S, A, B, C, D, E</td>
<td>H: 1.39</td>
<td>W: 1.30</td>
</tr>
</tbody>
</table>

## Metric

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR3-100-[]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H: 19</td>
<td>W: 22</td>
</tr>
<tr>
<td>CR3-300-[]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H: 27</td>
<td>W: 27</td>
</tr>
<tr>
<td>CR3-400-[]</td>
<td>S, AM, BM, CM, DM, EM</td>
<td>H: 33</td>
<td>W: 30</td>
</tr>
</tbody>
</table>

## MOUNTING OPTIONS

**S**
- Thru Hole
- Countersunk Hole

**A(M)**
- Countersunk Hole

**B(M)**
- Countersunk Hole

**C(M)**
- Countersunk Hole

**D(M)**
- Threaded

**E(M)**
- Threaded

## MOUNTING HARDWARE

<table>
<thead>
<tr>
<th>IMPERIAL</th>
<th>METRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>#4-40 M3 (x 0.5)</td>
<td>M3 (x 0.5)</td>
</tr>
</tbody>
</table>

Maximum recommended torque for threaded bar is 13 in.-lbs. (1.5 Nm).

## Standard Materials & Finishes*

- Cable: Stranded 300 Series Stainless Steel
- Retaining Bars: Aluminum Alloy, treated per MIL-C-5541

* Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.

## Operating Temperature Range

-150°F to 500°F (-100°C to 260°C)
Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
### CR4 Series

#### Imperial

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR4-100-</td>
<td>S, A, B, C, D, E</td>
<td>H (in.)</td>
<td>1.66</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W (in.)</td>
<td>1.87</td>
</tr>
<tr>
<td>CR4-200-</td>
<td>S, A, B, C, D, E</td>
<td>H (in.)</td>
<td>2.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W (in.)</td>
<td>2.12</td>
</tr>
<tr>
<td>CR4-300-</td>
<td>S, A, B, C, D, E</td>
<td>H (in.)</td>
<td>2.37</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W (in.)</td>
<td>2.34</td>
</tr>
<tr>
<td>CR4-400-</td>
<td>S, A, B, C, D, E</td>
<td>H (in.)</td>
<td>2.96</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W (in.)</td>
<td>2.67</td>
</tr>
</tbody>
</table>

#### Metric

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR4-100-</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>H (mm)</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W (mm)</td>
<td>48</td>
</tr>
<tr>
<td>CR4-200-</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>H (mm)</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W (mm)</td>
<td>54</td>
</tr>
<tr>
<td>CR4-300-</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>H (mm)</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W (mm)</td>
<td>59</td>
</tr>
<tr>
<td>CR4-400-</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>H (mm)</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W (mm)</td>
<td>68</td>
</tr>
</tbody>
</table>

#### Mounting Options

- **S(M)**: Thru Hole
- **A(M)**: Thru Hole
- **B(M)**: Countersunk Hole
- **C(M)**: Thru Hole
- **D(M)**: Threaded
- **E(M)**: Countersunk Hole

#### Mounting Hardware

**IMPERIAL**: #10-32 M6 (x 1,00) 82° COUNTERSINK

**METRIC**: M5 (1,0) 90° COUNTERSINK

Maximum recommended torque for threaded bar is 40 in.-lbs. (7,5 Nm)

#### Standard Materials & Finishes

- Cable: Stranded 300 Series Stainless Steel
- Retaining Bars: Aluminum Alloy, treated per MIL-C-5541

#### Operating Temperature Range

-150°F to 500°F (-100°C to 260°C)

---

Notes:
1. Dimensions are in inches (mm).
2. Top and Bottom Mount Bars are identical.

U.S. Patent 6,244,079

---

*Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.*
Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
CR5 Series

Notes: 1. Dimensions are in inches (mm).
2. Top and Bottom Mount Bars are identical.

Imperial

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT (oz.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR5-100</td>
<td>S, A, B, C, D, E</td>
<td>1.60</td>
<td>1.6</td>
</tr>
<tr>
<td>CR5-200</td>
<td>S, A, B, C, D, E</td>
<td>2.09</td>
<td>1.7</td>
</tr>
<tr>
<td>CR5-300</td>
<td>S, A, B, C, D, E</td>
<td>2.36</td>
<td>1.8</td>
</tr>
<tr>
<td>CR5-400</td>
<td>S, A, B, C, D, E</td>
<td>2.99</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Metric

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR5-100</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>41</td>
<td>46</td>
</tr>
<tr>
<td>CR5-200</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>53</td>
<td>48</td>
</tr>
<tr>
<td>CR5-300</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>60</td>
<td>51</td>
</tr>
<tr>
<td>CR5-400</td>
<td>SM, AM, BM, CM, DM, EM</td>
<td>76</td>
<td>57</td>
</tr>
</tbody>
</table>

MOUNTING OPTIONS

- S(M): Thru Hole
- A(M): Thru Hole
- B(M): Countersunk Hole
- C(M): Thru Hole
- D(M): Threaded
- E(M): Countersunk Hole

MOUNTING HARDWARE

- IMPERIAL: #10-32
- METRIC: M6 (x 1,0)

- 82° COUNTERSINK
- 90° COUNTERSINK

Maximum recommended torque for threaded bar is 40 in.-lbs. (7.5 Nm)

Standard Materials & Finishes*:

- Cable: Stranded 300 Series Stainless Steel
- Retaining Bars: Aluminum Alloy, treated per MIL-C-5541

* Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.

Operating Temperature Range

-150°F to 500°F (-100°C to 260°C)
CR5 Series

Load vs. Deflection

Notes:
A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.

Load vs. Natural Frequency

KEY
1 CR5-100
2 CR5-200
3 CR5-300
4 CR5-400
CR6 Series

MOUNTING OPTIONS

Imperial

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR6-100- [ ]</td>
<td>S, A, B, C, D, E</td>
<td>1.83 (0.035)</td>
<td>2.0 (oz.)</td>
</tr>
<tr>
<td>CR6-200- [ ]</td>
<td>S, A, B, C, D, E</td>
<td>2.15 (0.054)</td>
<td>2.2 (oz.)</td>
</tr>
<tr>
<td>CR6-300- [ ]</td>
<td>S, A, B, C, D, E</td>
<td>2.51 (0.063)</td>
<td>2.3 (oz.)</td>
</tr>
<tr>
<td>CR6-400- [ ]</td>
<td>S, A, B, C, D, E</td>
<td>3.09 (0.073)</td>
<td>2.6 (oz.)</td>
</tr>
</tbody>
</table>

Metric

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>SPECIFY MOUNTING OPTION</th>
<th>DIMENSIONS</th>
<th>UNIT WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR6-100- [ ]</td>
<td>S, A, B, C, D, E</td>
<td>47 (12)</td>
<td>57 (g)</td>
</tr>
<tr>
<td>CR6-200- [ ]</td>
<td>S, A, B, C, D, E</td>
<td>56 (14)</td>
<td>62 (g)</td>
</tr>
<tr>
<td>CR6-300- [ ]</td>
<td>S, A, B, C, D, E</td>
<td>64 (16)</td>
<td>66 (g)</td>
</tr>
<tr>
<td>CR6-400- [ ]</td>
<td>S, A, B, C, D, E</td>
<td>79 (19)</td>
<td>74 (g)</td>
</tr>
</tbody>
</table>

Notes:
1. Dimensions are in inches (mm).
2. Top and Bottom Mount Bars are identical.

U.S. Patent 6,244,579

Notes:
1. Dimensions are in inches (mm).
2. Top and Bottom Mount Bars are identical.

Maximum recommended torque for threaded bar is 40 in.-lbs. (7.5 Nm)

U.S. Patent 6,244,579

Operating Temperature Range

-150°F to 500°F (-100°C to 260°C)

Standard Materials & Finishes*

Cable: Stranded 300 Series Stainless Steel
Retaining Bars: Aluminum Alloy, treated per MIL-C-5641

* Non-standard materials and finishes are available. Contact Enidine to meet your specific requirements.
Notes: A. Natural frequency curves based on 1G input.
B. Do not extrapolate plotted curves.
C. Keys apply to both Load vs. Deflection and Load vs. Natural Frequency curves.
SIZING INSTRUCTIONS - SHOCK ISOLATION

Selecting appropriate isolators for shock is based on the Wire Rope Isolator's average stiffness at the required dynamic deflection ($D_{\text{min}}$). Follow the steps below to achieve a recommended Wire Rope Isolator product selection.

STEP 1: Fill out Part I and Part III of the Application Worksheet.

STEP 2: Refer to the Load vs. Natural Frequency curves for the required loading orientation. Use the System Natural Frequency ($f_n$) calculated from the worksheet to select the smallest Wire Rope Isolator model capable of the static load (W).

STEP 3: Specify the required mounting option suffix to complete the part number. (Please refer to available mounting options as indicated on each Wire Rope and Compact Wire Rope Isolator series data page.)

If the desired system natural frequency is known, refer to the appropriate Load vs. Natural Frequency curves to determine the recommended Wire Rope or Compact Wire Rope Isolator model. If the preferred system natural frequency is unknown, follow the steps below to achieve a recommended Wire Rope Isolator product selection.

STEP 1: Fill out Part I and Part II of the Application Worksheet.

STEP 2: Refer to the Load vs. Natural Frequency curves for the required loading orientation. Use the System Natural Frequency ($f_n$) calculated from the worksheet to select the smallest Wire Rope Isolator model capable of the static load (W).

STEP 3: Specify the required mounting option suffix to complete the part number. (Please refer to available mounting options as indicated on each Wire Rope and Compact Wire Rope Isolator series data page.)

Application Worksheet

PART I: SYSTEM DATA:

1. Total Load (W):
   - WT = ______ lbs.
   - WT = ______ Kg x 9.81 = ______ N
2. Number of Isolators (n):
   - n = ______
3. Static Load per Isolator (W):
   - $W = \frac{WT}{n}$
4. Load Axis: Compression, Shear or Roll
   - 45º Compression/Roll

PART II: VIBRATION SIZING:

1. Input Excitation Frequency ($f_i$) = ______ Hz (rpm)
2. System Natural Frequency for 80% isolation:
   - $f_n = \frac{f_i}{3.0}$
   - $f_n = ______$ Hz
   - $f_n = ______$ Hz

* The System Natural Frequency ($f_n$) must be on a published curve. The published natural frequencies are based on a 1G input condition. Random Vibration inputs: Consult Enidine for recommendations.

PART III: SHOCK SIZING:

1. Maximum Allowable Transmitted G Load ($G_T$):
   - ______ G's
2. Shock Input Velocity:
   - $V = \frac{A_0 T_0}{2g}$
   - a) Free Fall Impact:
     - $g = 386 \text{ in/} \text{sec}^2$ or $9.81 \text{ m/sec}^2$
     - $h = \text{Drop Height (in. or m)}$
     - $V = \frac{2gh}{2g}$
   - b) Half-Sine Acceleration Input:
     - $A_0 = \text{Peak Acceleration (G's)}$
     - $T_0 = \text{Duration (seconds)}$

Imperial Metric

3. Min. Response Deflection: $D_{\text{res}} = \frac{V^2}{g (G_T - 1)}$
   - $D_{\text{res}} = \frac{V^2}{g (G_T - 1)}$ in.
   - $D_{\text{res}} = \frac{V^2}{g (G_T - 1)}$ mm
4. Average Force: $F_{\text{avg}} = \frac{W V^2}{2g D_{\text{res}}}$
   - $F_{\text{avg}} = \frac{W V^2}{2g D_{\text{res}}}$ lbs.
   - $F_{\text{avg}} = \frac{W V^2}{2g D_{\text{res}}}$ N
5. Average Deflection: $d_{\text{avg}} = \frac{D_{\text{res}}}{2}$
   - $d_{\text{avg}} = \frac{D_{\text{res}}}{2}$ in.
   - $d_{\text{avg}} = \frac{D_{\text{res}}}{2}$ mm

Ordering Information

Fax, phone, or mail your order to the nearest Enidine/distributor location, Attention: Sales Department (see back cover for listing of Enidine locations).

EXAMPLE:

<table>
<thead>
<tr>
<th>PART I: SYSTEM DATA</th>
<th>IMPERIAL</th>
<th>METRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Load (W)</td>
<td>WT = 100 lbs.</td>
<td>W = ______ lbs.</td>
</tr>
<tr>
<td>Number of Isolators</td>
<td>n = 10</td>
<td></td>
</tr>
<tr>
<td>Static Load per Isolator (W)</td>
<td>$W = \frac{100}{10} = 10$ lbs.</td>
<td></td>
</tr>
</tbody>
</table>

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EXAMPLE:

<table>
<thead>
<tr>
<th>Specification</th>
<th>IMPERIAL</th>
<th>METRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR8 or CR6</td>
<td>600-08</td>
<td>600-08</td>
</tr>
</tbody>
</table>

**Please refer to available mounting options as indicated on each WR and CR series data page.**
Typical Compact Wire Rope Isolator Applications

CD-ROM Drives

Laboratory Centrifuges

Medical Ventilators

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

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