About Novia

Novia was founded in 1990 as Novia Associates, Inc. and our headquarters are in Salem, NH. In April 2015, Novia was purchased by Carpenter & Paterson, Inc., an industry leading pipe support and pipe hanger provider for commercial and industrial applications for over 100 years founded in the greater Boston, MA area. In partnership with Carpenter & Paterson, Novia now has a presence in many of the major markets across the US and Canada.

We specialize in providing custom, engineered vibration isolation and seismic restraint systems to the HVAC industry with a complete line of spring and rubber mountings, isolation hangers, inertia bases, roof curbs, seismic restraints, and equipment support systems. With over 25 years of experience in designing and fabricating solutions to the HVAC industry, we have become an industry leader in vibration isolation, seismic, and sound control. Novia also has the ability to provide project-specific engineering on seismic and wind-load requirements that utilize the local and IBC codes with a PE stamp for the state in which your project resides.

For ordering information please call Novia at (603) 898-8600 or email us at sales@cp-novia.com.

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CLIENT PORTAL

As a partner of Novia we want to offer you an easily accessible Client Portal to product information, submittal pages, and IOMs on Novia’s products and services. Please feel free to use these documents in planning your jobs and providing submittals to your customers and partners in time sensitive situations. Please visit our website at www.cp-novia.com and use the link for our Client Portal to sign up for an account.

These documents can be downloaded for use on each and every project where Novia products are needed. Just download the document, print, and write in any pertinent information that will help us guide you through the submittal and order processes. Send the finished document to Novia via fax or email to your salesman. Thank you for your continued partnership and we look forward to serving your needs!

- Novia Team

SPEC INFORMATION

Novia provides a base line vibration isolation, seismic and wind restraint, and thermal expansion specification through MasterSpec and the American Institute of Architects. Your engineering firm does not need to be a MasterSpec subscriber; the Novia MasterSpec is available for download through our website and is fully editable. With the inclusion of a few pieces of information from the structural drawings the specification can be used as a boilerplate for most typical projects. The specification is also fully customizable for your unique needs and special projects. Regardless of whether you choose to use the Novia specification you can always contact Novia for technical advice regarding code issues such as seismic and wind restraint compliance or with acoustical and noise control concerns. At Novia we do not consider ourselves just another vendor; we consider ourselves part of our client’s team.

Link to Novia specifications on MasterSpec: www.productmasterspec.com/Profile/Novia_A_Division_of_CP/69211
ENGINEERING SERVICES

At Novia, our decades of experience allow us to use our knowledge to our customers’ advantage. We have a number of engineering services available that will ensure projects are designed and installed as efficiently and cost-effectively as possible.

Some of the technical services we provide include:

**Lunch & Learn Seminars.** Training focused on different vibration isolation and seismic restraint related subjects such as proper selection of vibration isolation products; isolated roof curbs; proper support and control of riser piping; selection and installation of anchors, guides and expansion joints; rooftop equipment support applications; and seismic bracing of piping systems.

**Vibration Isolation & Seismic Restraint Installation Training.** Contractor focused training to allow for labor savings on installation by a combination of selection of cost effective standard products and efficient installation sequence; incorporation of seismic bracing at time of hanger installation; and techniques used in modular construction.

**Engineering Calculations & PE Certifications.** Novia’s technical staff can provide a variety of calculations often called out in project specifications. Examples include determining correct seismic and wind loads to apply to equipment and systems; equipment attachment loads on structures; anchor bolt calculations; riser piping thermal expansion movements and loads; and expansion joint anchor calculations. We have Professional Engineers in-house to provide stamped drawings, calculations and submittals in a timely manner.

**Pipe Riser Engineering.** Often project specifications require submission of a computerized piping analysis to verify that the piping system will not be overstressed and that piping loads transferred to the building structure are properly distributed while meeting both vibration isolation and seismic control requirements. The example below shows a typical riser shaft frame model utilizing Novia’s “All Directional Anchors (ADA)” to transfer the piping loads to the frame and building structure.

**Consulting services on optimized equipment support frame design and standardization.** How to create standard structural steel equipment support brackets and frames to be used on multiple projects and to modularize installation by the use of related equipment skids.

CUSTOM PRODUCT INFORMATION

ROOF CURBS

Novia designs and manufactures roof curb solutions for your roof-mounted HVAC equipment including custom air handling units, packaged rooftop units, VRF systems, and much more. The Novia roof curb line can be manufactured as insulated or uninsulated and all roof curbs are available with a plethora of options varying from duct supports to sound attenuators. All roof curbs are available fully assembled or knocked-down. We use fully welded seams on the curb panels and offer a detachable pipe enclosure that can be insulated on the inside or outside. Fabrication is completed using G90 galvanized steel in a variety of gauges based on the specific requirements of each project.

VIBCURBS

Vibration isolation roof curbs (VibCurbs) are designed to customer’s specifications and built to attach to the manufacturer’s unit. VibCurbs are offered in a variety of heights and can be restrained and PE stamped for wind and/or seismic loading. The VibCurb is available with 1”, 2”, or 3” deflection springs that are accessible for removal, replacement, and adjustment. The Novia VibCurb offers an innovative construction with springs fully enclosed within the curb walls, avoiding a floating rail and flexible flashing.
SEISCURBS

Prefabricated roof curbs built to the latest code standards are available for both seismic and/or wind-load applications. These curbs come with internal bracing, heavy gauge construction, tie-down restraints, and are PE stamped based on the local building code. Each SeisCurb is engineered specifically for the project requirements, not based on generic seismic and wind-load standards. Our SeisCurb
t includes a detailed seismic or wind-load calculation certifying the detailed attachment requirements. Concrete and steel attachments are provided as the standard. Other attachment options for wood and other surfaces are also available.

SPECIALTY CURBS

At Novia, we specialize in custom roof curb options for many applications. All options are available with the Novia VibCurb and/or SeisCurb product lines. We offer:

- Sound barrier packages
- Sound attenuators
- Fully insulated or uninsulated floor pans
- Double-wall perforated insulated walls
- Smoke dampers
- Plenum curbs
- VRF curbs with piping enclosure
- Catwalks/Service Platforms
- Turning vanes
- Filter curbs
- Metal Building Curbs
- And many other options!

Custom options are available to suit the needs of a special project as required.

ADAPTER CURBS

Novia offers a full line of adapter curbs for any existing to new rooftop equipment when the footprints of the units and the duct drop locations do not match. Our offerings include pipe chase adapters, catwalks, full plenums to seal off return and supply airflow, and any other needs as required by your project. Adapter curbs offer significant project savings on costly construction and eliminates much of the labor costs involved with replacing existing equipment. From small to large equipment and standard units to custom units, we are your one stop shop for adapter curbs.

When appropriate, a qualified Novia representative can come to your jobsite to perform measurements on your existing roof curb. After the jobsite visit our engineering staff will design the adapter curb to optimize connection from your new equipment to the existing ductwork.
CUSTOM ROOF CURB APPLICATIONS

Whatever your roof curb needs may be, Novia has the solution to even your most complex projects. Call our sales team today to discuss how we can help you meet your budget and time line.

INERTIA BASES

Novia offers a variety of standard and custom Inertia Bases to reduce vibration and start-up torque for HVAC equipment. Novia Inertia Bases are designed to be partnered with our isolation mounts in order to properly distribute the load while providing the maximum vibration isolation efficiency. We custom engineer our bases to your project-specific needs.

For fast-paced projects we offer (6) stock Inertia Base sizes (see pages 53-58). Given the specifications of the equipment that will be placed on the base, Novia will perform the appropriate calculations to provide the correct stock Inertia Base size and isolators.

Air compressors – An Inertia Base lowers the center of gravity of an air compressor in order to stabilize the equipment and uniformly load the isolators. The Inertia Base will double the frequency, which increases the efficiency of arresting the vibration frequency of the equipment.

Pumps – Most pump manufacturers require the base frame of the pump to be grouted to the attachment location. Using a Novia Inertia Base will provide isolation and maintain the pump manufacturer’s warranty requirements.

We also provide Inertia Bases for:

- Chillers
- Air Handling Units
- Utility-Style Fans
- Centrifugal Fans
- Plenum Fans
- Condensers
- And any other equipment as required for your project.
KNOCKED-DOWN INERTIA BASE

Beginning in 2017 we are excited to offer a new knocked-down, spring-isolated concrete Inertia Base.

Our quick and easy to assemble equipment base is both sturdy and economical. It has been designed to ship virtually anywhere in the world via UPS. The knocked-down Inertia Base’s compact shipping configuration allows it to be carried to where it is needed on your jobsite, which can be difficult in some cases with the standard heavy welded bases.

- KD- Bases are available in (6) stock sizes for use with our 1” or 2” deflection spring mounts.
- KD- Bases have a galvanized steel design for use in most applications.
- Snubbers may be added to satisfy seismic restraint requirements for your project.
- Spring-mount floor attachment plates may also be purchased for projects that require them.

CUSTOM SUPPORT SYSTEMS FOR ROOF MOUNTED EQUIPMENT

Novia specializes in a wide range of support systems for roof-mounted HVAC equipment designed and engineered to provide roof structure attachment in compliance with your local and IBC codes. These support systems are offered in a variety of options to meet your specific project requirements. Each assembly is engineered to properly support and provide positive attachment to your specific equipment based on the equipment location and unique building structure.

Flashable Roof Rails (FRR)

Each project has its own individual challenges for supporting rooftop equipment. Our FRR systems are individually designed for your project’s needs. These systems are offered in any height and length and are designed to be flashed in by your roof membrane. The FRRs attach to your building structure so that your equipment is properly supported to meet the structural requirements of the project.

Some of the most frequent uses of the FRR are:
- Rooftop Packaged Units
- Rooftop Air Handling Units
- Condensers
- VRF Systems
- Fans
- Compressors
- Chillers
- Cooling Towers
- Solar Panels

Flashable Roof Rails with Vibration Isolation

Similar to the Novia VibCurb, we also offer our FRR systems with the addition of our Novia Curb Wall Spring Pocket Technology. Just like the VibCurb, the isolated FRR is available in 1”, 2” and 3” deflection models, all with accessible spring pockets. This option provides uniform support for the equipment along with an effective means of vibration isolation while complying with wind-load and/or seismic restraint requirements. These systems can include a PE stamp for the state in which your project resides.
CUSTOM STEEL SUPPORT SYSTEMS

Whether your equipment is indoor or outdoor, Novia has the innovative design to fabricate an isolated or non-isolated custom steel support system. Our structural steel bases will be designed to meet all project specifications for equipment steel support bases and provide a rigid mounting and anchoring system for vibration isolated or non-isolated mechanical equipment.

CATWALKS AND SERVICE PLATFORMS

Novia catwalks and service platforms give technicians a safe and easy way to access the unit for service, repair and maintenance. They are custom manufactured to meet the needs of the customer. The construction that is dependent on the building structure, and not on the roof curb, gives more flexibility on the application of the catwalk or service platform and can significantly reduce project costs.

- Our products are designed to meet OSHA Requirements.
- Catwalks and service platforms can be free standing, roof curb mounted (to Novia roof curbs only), or can be custom fit to attach to units.
- Our products include removable safety railings.
- Catwalks and service platforms are custom fit and designed for each project.
- Offerings include adjustable feet with a variety of footings that can be provided.
- Catwalks will be shipped knocked down on pallets with all necessary hardware and ready for assembly in the field.
- When used with roof curbs, the roof curbs are built with tube steel stub outs on the outside walls to transfer load of catwalk onto the roof curb.
- Structural steel joist and leg assemblies are provided with a hot dipped galvanized finish and attached to the roof curb stub outs with 3/8” x 2 ½” hex bolts.
- Galvanized Gripstrut Grating is provided for all walkways and stair/ ladder treads. The walkways are provided in a 12Ga or 14Ga thickness to meet structural standards.
- We realize not all jobs are the same and we strive to provide a service platform that best meets the customer’s need.
CATWALKS AND SERVICE PLATFORMS

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A-SIZE BOX

CERTIFICATION DATA

BY: ____________________________  DATE: ____________________________  DWG#: ____________________________

Standard Finish: Galvanized Steel

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NEOPRENE ELEMENT DATA

**SIZE** | **COLOR** | **DURO-METER** | **RATED CAPAC (LBS)** | **RATED DEFL (IN)**
---|---|---|---|---
C-1000 | BLUE | 40 | 1000 | 0.50
C-1500 | GREEN | 50 | 1500 | 0.50
C-2000 | RED | 60 | 2000 | 0.50
C-2450 | BLACK | 70 | 2450 | 0.50

*Standard Finish: Painted
Available Finish: Hot Dip Galvanized

SH DIMENSIONS (IN)

**SIZE** | **H** | **W** | **B** | **T** | **D** | **RP** | **TR**
---|---|---|---|---|---|---|---
A | 5 1/8 | 2 | 2 1/2 | 2 1/2 | N/A | 1 1/16 | 1/2
B | 7 1/8 | 2 | 3 7/8 | 2 7/16 | 3 1/4 | 1 3/4 | 3/4
C | 9 3/4 | 2 1/2 | 5 1/2 | 4 3/8 | 4 3/4 | 2 | 1

¹Springs have a 50% overload capacity.
²Published ratings allow for 30% additional travel to solid. For 50% additional travel, multiply Rated Capacity and Rated Deflection by 0.841.

CERTIFICATION DATA

BY: ___________________ DATE: ___________________ DWG#: ___________________
SH-C2
1° DEFLECTION SPRING HANGER DUAL SH 100 09/29/16

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**C2-2536**

**RATINGS**

- **Rated Capacity (LBS)**: 2500
- **Rated Deflection (IN)**: 1.01
- **Rated Const (LBS/IN)**: 11.25
- **Color**: RED

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**NEOPRENE CUPS**

**NOTE:** PREDRILLED HOLE SIZE FOR 1 1/2" ROD WILL BE 1 1/2" - HANGER CAN ALSO BE USED WITH 1 1/2" ROD AND WILL NEED A 1 1/2" CLEARANCE HOLE. USE HOLE SIZES AS CALLED OUT FOR BOTH CASES

---

SH-2B
2° DEFLECTION SPRING HANGER SH-2B 110 09/29/16

**SPECFICATION DATA**

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**C2-2536**

**Rated Capacity (LBS)**: 2500
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**Rated Const (LBS/IN)**: 11.25
**Color**: RED

**SPRING DATA**

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**NEOPRENE CUPS**

**NOTE:** SPRINGS HAVE A 50% OVERLOAD CAPACITY.

- Standard Finish: Painted
- Available Option: Pre-compressed
SH-D
2" DEFLECTION
SPRING HANGER
SH-D 100 09/29/16

SH-D2
2" DEFLECTION
SPRING HANGER
DUAL SH 100 09/29/16

THREADED ROD (BY OTHERS)
MAX Ø 1"

NEOPRENE CUP

TOP
2 1/2"
4 3/4"

5 1/2"

30°

4 5/8"
1 3/8" MAX

10 1/4"

NOTE: PREDRILLED HOLE SIZE FOR 1 1/4" ROD WILL BE 1 3/4" - HANGER CAN ALSO BE USED WITH 1 1/2" ROD AND WILL NEED A 1 1/2" CLEARANCE HOLE. USE HOLE SIZES AS CALLED OUT FOR BOTH CASES.

CERTIFICATION DATA

BY: ___________________________ DATE: ________________ DWG#: ________________

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SPRING DATA

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RATIO

0.88 - 0.99

SH-D SPRING DATA

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<th>SPRING CONST (LBS/IN)</th>
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CORE SPRING: *360 RED; **800 BLUE

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RATIO

0.89 - 0.99

SH-D2 CERTIFICATION DATA

BY: ___________________________ DATE: ________________ DWG#: ________________

SH-D CERTIFICATION DATA

BY: ___________________________ DATE: ________________ DWG#: ________________

PROJECT: ___________________________________________
CUSTOMER: _________________________________________

Novia
A Division of C&P
1 Northwestern Dr.
Salem, NH 03079
Ph: 603-898-8600
Fax: 603-898-2755
sales@cp-novia.com

CERTIFICATION DATA

BY: ___________________________ DATE: ________________ DWG#: ________________

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VISIT US AT CP-NOVIA.COM FOR MORE INFORMATION.
**SH-E**

**3° DEFLECTION**

**SPRING HANGER**

**SH-E 100 09/29/16**

**CERTIFICATION DATA**

- **Measurements:**
  - Threaded Rod (By Others): Max Ø1”
  - Spring Free Ratio: 4.99% - 7.82%
  - Ø1” Diameter Hole Type (in):
    - 7.34”
    - 11.14”
  - 3.23 - 3.46
  - 3.03 - 3.08
  - 3.22 - 3.09
  - 3.20 - 3.03

- **Note:** Springs have a 50% overload capacity.

- **Finish Options:**
  - Standard Finish: Galvanized Steel
  - Available Option: Pre-compressed

**SH-E2**

**3° DEFLECTION**

**SPRING HANGER**

**DUAL SH 100 09/29/16**

**CORE SPRING: 638 RED; 1,125 GREEN**

**STEELED CUPS**

**SPRINGS**

**3.20 - 3.03**

**15.1/2”**

**NOTE:** Predrilled hole size for 1/2” rod will be 1-1/2”. Hanger can also be used with 1/2” rod and will need a 1-1/2” clearance hole. Use hole sizes as called out for both cases.

**CERTIFICATION DATA**

- **Measurements:**
  - Ø1” Diameter Hole Type (in):
    - 15.1/2”
    - 7.34”
    - 3.23 - 3.46
    - 3.03 - 3.08
    - 3.22 - 3.09
    - 3.20 - 3.03

- **Note:** Springs have a 50% overload capacity.

- **Finish Options:**
  - Standard Finish: Painted
  - Available Finish: Hot Dip Galvanized

**Novia**

A Division of C&P

1 Northwestern Dr.

Salem, NH 03079

Ph: 603-898-8600

Fax: 603-898-2755

sales@cp-novia.com

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SNH - 1" DEFLECTION SPRING & NEOPRENE HANGER
SNH 100 09/29/16

<table>
<thead>
<tr>
<th>SIZE</th>
<th>RATED CAPAC (LBS)</th>
<th>RATED DEFL (IN)</th>
<th>SPRING CONST (LBS/IN)</th>
<th>COLOR</th>
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**SNH DIMENSIONS (IN)**

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<th>D</th>
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**NOTE:** PREDRILLED HOLE SIZE FOR 1 1/4" ROD WILL BE 1 1/2" - HANGER CAN ALSO BE USED WITH 1 1/2" ROD AND WILL NEED A 1 1/2" CLEARANCE HOLE. USE HOLE SIZES AS CALLED OUT FOR BOTH CASES.
2" DEFLECTION SPRING & NEOPRENE HANGER
SNH-2B 110 09/29/16

THREADED ROD (BY OTHERS)
MAX Ø3/4”

NEOPRENE ELEMENT

NEOPRENE CUP

CERTIFICATION DATA

2.00" 2.35" 11.25" [RED]
2B-23 22.5 2.35 11.25 RED
2B-45 45 2.35 22.5 BLU
2B-90 90 2.35 45 GRN
2B-140 140 2.35 70 BLK
2B-200 200 2.35 100 GRAY

SPRING DATA

SIZE CAPAC DEFLECTED SPRING CONST RATING RATING OD/OH
IN (LBS) (IN) (LBS/IN)

2B-23 22.5 2.35 11.25 RED
2B-45 45 2.35 22.5 BLU
2B-90 90 2.35 45 GRN
2B-140 140 2.35 70 BLK
2B-200 200 2.35 100 GRAY

 Springs have a 50% overload capacity.
Rated Deflection combines spring and neoprene element deflection.
Standard Finish: Galvanized Steel
Available Option: Pre-compressed

2" DEFLECTION SPRING & NEOPRENE HANGER
SNH-D 100 09/29/16

THREADED ROD (BY OTHERS)
MAX Ø3/4”

NEOPRENE ELEMENT

NEOPRENE CUP

CERTIFICATION DATA

2.00" 2.35" 11.25" [RED]
D-236 236 2.75 100 ORANGE
D-352 352 2.75 150 RED
D-410 410 2.35 205 BLUE
D-624 624 2.48 300 GREEN
D-840 840 2.40 420 BLACK
D-1000 1000 2.50 500 GRAY

SPRING DATA

SIZE CAPAC DEFLECTED SPRING CONST RATING RATING OD/OH
IN (LBS) (IN) (LBS/IN)

D-236 236 2.75 100 ORANGE
D-352 352 2.75 150 RED
D-410 410 2.35 205 BLUE
D-624 624 2.48 300 GREEN
D-840 840 2.40 420 BLACK
D-1000 1000 2.50 500 GRAY

 Springs have a 50% overload capacity.
Rated Deflection combines spring and neoprene element deflection.
Standard Finish: Paint
Available Finish: Hot Dip Galvanized
Available Option: Pre-compressed

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NOTE: PREDRILLED HOLE SIZE FOR 1 1/4" ROD WILL BE 1 1/4" - HANGER CAN ALSO BE USED WITH 1 1/2" ROD AND WILL NEED A 1 3/4" CLEARANCE HOLE. USE HOLE SIZES AS CALLED OUT FOR BOTH CASES.

CERTIFICATION DATA

BY: DATE: DWG#: 

PROJECT: ___________________________________________ CUSTOMER: _________________________________________

Novia
A Division of C&P
1 Northwestern Dr.
Salem, NH 03079
Ph: 603-898-8600
Fax: 603-898-2755
sales@cp-novia.com

SNH-D2
2" DEFLECTION SPRING HANGER
DUAL SNH 100 09/29/16

SAXN SPRING DATA

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CORE SPRING: *360 RED; **800 BLUE

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Springs have a 50% overload capacity.
Rated Deflection combines spring and neoprene element deflection.
Standard Finish: Painted
Available Finish: Hot Dipped Galvanized

SNH-E
3" DEFLECTION SPRING & NEOPRENE HANGER
SNH-E 100 09/29/16

SNH-E SPRING DATA

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</table>

Springs have a 50% overload capacity.
Rated Deflection combines spring and neoprene element deflection.
Standard Finish: Galvanized Steel
Available Option: Pre-compressed
**NOTE:** Predrilled hole size for 1 1\(\frac{1}{4}\)" rod will be 1 1\(\frac{1}{2}\)". Hanger can also be used with 1 1\(\frac{3}{4}\)" rod and will need a 1 3\(\frac{1}{4}\)" clearance hole. Use hole sizes as called out for both cases.

### SPRING DATA

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CORE SPRING: 638 RED; **1,125 GREEN

Springs have a 50% overload capacity.

Rated Deflection combines spring and neoprene element deflection.

Standard Finish: Painted

Available Finish: Hot Dip Galvanized

### NEOPRENE ELEMENT DATA

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<tr>
<th>NM DIMENSIONS (IN)</th>
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<tbody>
<tr>
<td>SIZE</td>
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<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
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</table>

CERTIFICATION DATA

BY: DATE: DWG No:
NOTES:
FMD-E & FMD-F HAVE RECTANGULAR BASES.

FEATURES:
* ANTI-SKID TOP & BOTTOM SURFACES
* MOUNTING HOLES
* EMBEDDED STEEL PLATES FOR UNIFORM LOADING
* OIL & WATER RESISTANT
* HIGH DEFLECTION, LOW NATURAL FREQUENCY
* COLOR CODED

CERTIFICATION DATA
BY: ________________________  DATE: ________________________  DWG#: _____________

RNM DIMENSIONS (IN)

H = UNLOADED HEIGHT
OH = OPERATING HEIGHT
NOTE: LONGER "D" BOLT MAY BE FIELD SUBSTITUTED IF REQUIRED.

Standard Finish:
A - Galvanized Steel
B,C - Painted

Available Finish:
B,C - Hot Dip Galvanized

CERTIFICATION DATA
BY: ________________________  DATE: ________________________  DWG#: _____________
**SM-A**

1" DEFLECTION SPRING MOUNTING
SM 100 09/29/16

### SPRING DATA

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<tr>
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<th>RATED DEFL (IN)</th>
<th>SPRING CONST (LBS/IN)</th>
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*Springs have a 50% overload capacity.

Standard Finish: Painted

Available Finish: Hot Dip Galvanized

**SM-B**

1" DEFLECTION SPRING MOUNTING
SM 100 09/29/16

### SPRING DATA

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<th>SPRING CONST (LBS/IN)</th>
<th>COLOR</th>
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<tbody>
<tr>
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<tr>
<td>B-371</td>
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<td>1.24</td>
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<tr>
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<td>blK</td>
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<td>900</td>
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<tr>
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### SM DIMENSIONS (IN)

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<th>OD/H</th>
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*B2 = 2 SPRINGS

*Springs have a 50% overload capacity.

Standard Finish: Painted

Available Finish: Hot Dip Galvanized
CERTIFICATION DATA

BY: DATE: DWG#:

PROJECT: ___________________________________________
CUSTOMER: _________________________________________

Novia
A Division of C&P
1 Northwestern Dr.
Salem, NH 03079
Ph: 603-898-8600
Fax: 603-898-2755
sales@cp-novia.com

VISIT US AT CP-NOVIA.COM FOR MORE INFORMATION.

SM-C
1" DEFLECTION SPRING MOUNTING
SM-C 100 09/29/16

**SPRING DATA**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>RATED CAPAC (LBS)</th>
<th>RATED DEFEL (IN)</th>
<th>SPRING CONST (LBS/IN)</th>
<th>COLOR</th>
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<td>1750</td>
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**CORE SPRINGS:** 750 RED, 1000 GREEN
C = 1 SPRING  C2 = 2 SPRINGS

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<th>RATIO</th>
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<th>HGT</th>
<th>OD/CH</th>
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**SM DIMENSIONS (IN)**

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<th>H</th>
<th>AB</th>
<th>D</th>
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<tr>
<td>C</td>
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<td>3 3/8</td>
<td>6-1/4</td>
<td>3/8</td>
<td>3/8</td>
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<td>ORG</td>
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<td>C2-3000</td>
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<td>3000</td>
<td>ORG</td>
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<tr>
<td>C2-6000</td>
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<td>C2-6400</td>
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**SM-2B DIMENSIONS (IN)**

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<th>D</th>
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<tr>
<td>2B</td>
<td>2-1/4</td>
<td>2-1/4</td>
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<td>3/8</td>
</tr>
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</table>

H = FREE & OPERATING HEIGHT

Springs have a 50% overload capacity.

Standard Finish: Painted

Available Finish: Hot Dip Galvanized

CERTIFICATION DATA

BY: DATE: DWG#:

PROJECT: ___________________________________________
CUSTOMER: _________________________________________

Novia
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1 Northwestern Dr.
Salem, NH 03079
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Fax: 603-898-2755
sales@cp-novia.com

VISIT US AT CP-NOVIA.COM FOR MORE INFORMATION.

SM-2B
2" DEFLECTION SPRING MOUNTING
SM-2B 110 09/29/16

**SPRING DATA**

<table>
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<tr>
<th>SIZE</th>
<th>RATED CAPAC (LBS)</th>
<th>RATED DEFEL (IN)</th>
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**SPRING DATA**

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<th>O.D.</th>
<th>HGT</th>
<th>OD/CH</th>
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**SM-2B DIMENSIONS (IN)**

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<th>AB</th>
<th>D</th>
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<td>3/8</td>
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</table>

H = FREE & OPERATING HEIGHT

Springs have a 50% overload capacity.

Standard Finish: Painted

Available Finish: Hot Dip Galvanized

CERTIFICATION DATA

BY: DATE: DWG#:

PROJECT: ___________________________________________
CUSTOMER: _________________________________________

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Fax: 603-898-2755
sales@cp-novia.com

VISIT US AT CP-NOVIA.COM FOR MORE INFORMATION.
**RSM-A**

**SPRING DATA**

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<tr>
<th>Size</th>
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**NEOPRENE CUP**

**ZINC PLATED HOUSING**

**NEOPRENE BUSHING**

**NEOPRENE GROMMET**

**UP STOP**

**ADJUSTMENT BOLT**

**CERTIFICATION DATA**

*Springs have a 50% overload capacity. Standard finish: Galvanized Steel.*

**ERSM-B**

**SPRING DATA**

<table>
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<tr>
<th>Size</th>
<th>Rated Cap (LBS)</th>
<th>Rated Defl (IN)</th>
<th>Spring Const (LBS/IN)</th>
<th>Color</th>
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<tbody>
<tr>
<td>B-261</td>
<td>261</td>
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<tr>
<td>B-371</td>
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<td>1.24</td>
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<tr>
<td>B-640</td>
<td>640</td>
<td>1.28</td>
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<td>B-731</td>
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<td>B-908</td>
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<td>1000</td>
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**NEOPRENE CUP**

**UP STOP**

**ADJUSTMENT BOLT**

**NEOPRENE BUSHING**

**CORE SPRING: # 313 RED**

**SPRING FREE HGT**

**RATIO OD/OH**

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<th>Ratio</th>
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**RSM-BW**

1" DEFLECTION

RESTRAINED SPRING MOUNTING

**RSM-BW 100** 09/29/16

<table>
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<td>BW-908</td>
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<td>GRAY</td>
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<td>BW-1044</td>
<td>1044</td>
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<tr>
<td>BW-1221</td>
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<td>BW-2442</td>
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</table>

313 RED CORE SPRING

BW = 1 SPRING, BW2 = 2 SPRINGS, BW4 = 4 SPRINGS

<table>
<thead>
<tr>
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<th>FREE</th>
<th>RATIO</th>
<th>O.D.</th>
<th>HGT</th>
<th>OD/ID</th>
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**RSM DIMENSIONS (IN)**

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<th>TC</th>
<th>HCL</th>
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<th>RB</th>
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<td>1</td>
<td>7/8</td>
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<td>7/8</td>
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<td>BW2</td>
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<td>3/4</td>
<td>4</td>
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*Springs have a 50% overload capacity.
Standard Finish: Painted
Available Finish: Hot Dip Galvanized

**RSM-C**

1" DEFLECTION

RESTRAINED SPRING MOUNTING

**RSM-C 100** 09/29/16

<table>
<thead>
<tr>
<th>SPRING DATA</th>
<th>RATED CAPAC (LBS)</th>
<th>RATED DEFL (IN)</th>
<th>CONST</th>
<th>COLOR</th>
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<tbody>
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<td>ORG</td>
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<td>RED</td>
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<td>C-1608</td>
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<td>1.07</td>
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<tr>
<td>C-2750</td>
<td>2750</td>
<td>1.00</td>
<td>2750</td>
<td>BLK*</td>
</tr>
<tr>
<td>C-3000</td>
<td>3000</td>
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<td>3000</td>
<td>BLK**</td>
</tr>
<tr>
<td>C-3450²</td>
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<td>1.00</td>
<td>3450</td>
<td>GRAY**</td>
</tr>
<tr>
<td>C-4000</td>
<td>4000</td>
<td>1.00</td>
<td>4000</td>
<td>BLK</td>
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<tr>
<td>C-4900²</td>
<td>4900</td>
<td>1.00</td>
<td>4900</td>
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<tr>
<td>C-5500</td>
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<td>1.00</td>
<td>5500</td>
<td>BLK*</td>
</tr>
<tr>
<td>C-6000</td>
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<tr>
<td>C-6900²</td>
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</tr>
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<td>C-8000</td>
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<td>C-9800²</td>
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<td>C-11244</td>
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<td>C-12800²</td>
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<tr>
<td>C-13800²</td>
<td>13800</td>
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</tr>
</tbody>
</table>

CORE SPRINGS: *750 RED, **1000 GREEN

G = 1 SPRING, C2 = 2 SPRINGS, C4 = 4 SPRINGS

<table>
<thead>
<tr>
<th>SPRING</th>
<th>FREE</th>
<th>RATIO</th>
<th>O.D.</th>
<th>HGT</th>
<th>OD/ID</th>
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<tr>
<td>3.00&quot;</td>
<td>4.375</td>
<td>1.45</td>
<td>1.04</td>
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<td>0.91</td>
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**RSM DIMENSIONS (IN)**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>BL</th>
<th>BW</th>
<th>TH</th>
<th>TL</th>
<th>TW</th>
<th>HCL</th>
<th>HCW</th>
<th>MB</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>10</td>
<td>1/4</td>
<td>4</td>
<td>9</td>
<td>1/4</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>3/4</td>
<td>3/4</td>
</tr>
<tr>
<td>C2</td>
<td>14</td>
<td>1/4</td>
<td>4</td>
<td>13/2</td>
<td>4</td>
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<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

*Springs have a 50% overload capacity.
*Published ratings allow for 30% additional travel to solid.
For 55% additional travel, multiply Rated Capacity and Rated Deflection by 0.841.
Standard Finish: Painted
Available Finish: Hot Dip Galvanized
ERSM-C
1" DEFLECTION
RESTRAINED SPRING
MOUNTING
ERSM-C 100 09/29/16

NEOPRENE
CUP

6 1/2"

NEOPRENE
BUSHING

UP STOP

PLAN VIEW - FORMED TOP

C-1061
1061
1.06
1000
ORG

C-1288
1268
1.01
1250
RED

C-1608
1608
1.07
1500
BLUE

C-1811
1811
1.03
1750
GRN

C-2000
2000
1.00
2000
BLK

C-2450
2450
1.00
2450
GRAY

C-2750
2750
1.00
2750
BLK*

C-3000
3000
1.00
3000
BLK**

C-3450
3450
1.00
3450
GRAY**

CORE SPRINGS: *750 RED; **1000 GREEN

SPRING DATA

SIZE
C-1061
C-1288
C-1608
C-1811
C-2000
C-2450
C-2750
C-3000
C-3450

RATED CAPAC (LBS)
1061
1268
1608
1811
2000
2450
2750
3000
3450

RATED DEFL (IN)
1.06
1.01
1.07
1.03
1.00
1.00
1.00
1.00
1.00

SPRING CONST (LBS/IN)
1000
1250
1500
1750
2000
2450
2750
3000
3450

COLOR
ORG
RED
BLUE
GRN
BLK
GRAY
BLK*
BLK**
GRAY**

SPRING DATA

SIZE
C-1061
C-1288
C-1608
C-1811
C-2000
C-2450
C-2750
C-3000
C-3450

RATED CAPAC (LBS)
1061
1268
1608
1811
2000
2450
2750
3000
3450

RATED DEFL (IN)
1.06
1.01
1.07
1.03
1.00
1.00
1.00
1.00
1.00

COLOR
ORG
RED
BLUE
GRN
BLK
GRAY
BLK*
BLK**
GRAY**

ADJUSTMENT BOLT

NEOPRENE CUP

UP STOP

2 3/4"

Ø11/16"

CERTIFICATION DATA

BY: DATE: DWG#:

ERSM-2B
2" DEFLECTION
RESTRAINED SPRING
MOUNTING
ERSM-2B 110 09/29/16

SPRING DATA

SIZE
2B-23
2B-45
2B-90
2B-140
2B-200

RATED CAPAC (LBS)
23
45
90
140
200

RATED DEFL (IN)
2.00
2.00
2.00
2.00
2.00

RATED CAPAC (LBS)
11.5
22.5
45
70
100

COLOR
SILV/RED
SILV/BLU
SILV/GRN
SILV/BLK
SILV/GRAY

SPRING FREE RATIO
O.D.
3.00"
4.375"
0.89 - 0.91

CERTIFICATION DATA

BY: DATE: DWG#:

Novia
A Division of C&P
1 Northwestern Dr.
Salem, NH 03079
Ph: 603-898-8600
Fax: 603-898-2755
sales@cp-novia.com

VISIT US AT CP-NOVIA.COM FOR MORE INFORMATION.
**RSM-2BW**

**Neoprene Bushing**

<table>
<thead>
<tr>
<th>Size</th>
<th>Rated Capac (lbs)</th>
<th>Rated Defl (in)</th>
<th>Spring Const (lbs/in)</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>2BW-23</td>
<td>23</td>
<td>2.00</td>
<td>11.5</td>
<td>SIL/VRD</td>
</tr>
<tr>
<td>2BW-45</td>
<td>45</td>
<td>2.00</td>
<td>22.5</td>
<td>SIL/BLU</td>
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<tr>
<td>2BW-90</td>
<td>90</td>
<td>2.00</td>
<td>45</td>
<td>SIL/GRN</td>
</tr>
<tr>
<td>2BW-140</td>
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<td>70</td>
<td>SIL/BLK</td>
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<tr>
<td>2BW-200</td>
<td>200</td>
<td>2.00</td>
<td>100</td>
<td>SIL/GRY</td>
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**RSM Dimensions (in)**

<table>
<thead>
<tr>
<th>Size</th>
<th>BL</th>
<th>BW</th>
<th>TL</th>
<th>TW</th>
<th>HCL</th>
<th>HCW</th>
<th>RB</th>
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<tbody>
<tr>
<td>2BW</td>
<td>8.5/8</td>
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<td>1</td>
<td>7.7/8</td>
<td>4</td>
<td>7.3/4</td>
<td>2</td>
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</table>

**Certification Data**

- **Tag:** ____________________________
- **Unit:** ____________________________

**By:** ____________________________  **Date:** ____________________________  **Dwg:** ____________________________

**RSM-2D**

**Neoprene Bushing**

<table>
<thead>
<tr>
<th>Size</th>
<th>Rated Capac (lbs)</th>
<th>Rated Defl (in)</th>
<th>Spring Const (lbs/in)</th>
<th>Color</th>
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<tbody>
<tr>
<td>D-236</td>
<td>236</td>
<td>2.36</td>
<td>100</td>
<td>ORG</td>
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<tr>
<td>D-352</td>
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<td>2.35</td>
<td>150</td>
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<tr>
<td>D-410</td>
<td>410</td>
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<tr>
<td>D-624</td>
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<td>D-840</td>
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<td>D-1000</td>
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<tr>
<td>D-1360</td>
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<tr>
<td>D-1540</td>
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<td>2.00</td>
<td>900</td>
<td>BLK**</td>
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<tr>
<td>D-1800</td>
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<td>2.00</td>
<td>900</td>
<td>GRAY**</td>
</tr>
<tr>
<td>D-2200</td>
<td>2200</td>
<td>2.00</td>
<td>1000</td>
<td>GRAY</td>
</tr>
<tr>
<td>D-2400</td>
<td>2400</td>
<td>2.00</td>
<td>1200</td>
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</tr>
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<td>D-2720</td>
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<td>2.00</td>
<td>1360</td>
<td>GRAY*</td>
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<tr>
<td>D-3280</td>
<td>3280</td>
<td>2.00</td>
<td>1640</td>
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<tr>
<td>D-3600</td>
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<td>2.00</td>
<td>1800</td>
<td>GRAY**</td>
</tr>
<tr>
<td>D-4000</td>
<td>4000</td>
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<td>2000</td>
<td>GRAY</td>
</tr>
<tr>
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<td>4080</td>
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<td>2.00</td>
<td>5400</td>
<td>GRAY**</td>
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</table>

**Certification Data**

- **Tag:** ____________________________
- **Unit:** ____________________________

**By:** ____________________________  **Date:** ____________________________  **Dwg:** ____________________________

**Note:** Springs have a 50% overload capacity. Available Finish: Hot Dip Galvanized
### SPRING DATA

<table>
<thead>
<tr>
<th>SIZE</th>
<th>RATED CAPAC (LBS)</th>
<th>RATED DEFL (IN)</th>
<th>SPRING CONST (LBS/IN)</th>
<th>COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
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</tr>
<tr>
<td>3/8&quot;</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5/8&quot;</td>
<td></td>
<td></td>
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### CUSTOM SPRINGS

- **NEOPRENE BUSHING**
- **10° ADJUST WRENCH**
- **SHIM**

### RSM DIMENSIONS (IN)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>BL</th>
<th>BW</th>
<th>TL</th>
<th>TW</th>
<th>HCL</th>
<th>HCW</th>
<th>MBW</th>
</tr>
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<tbody>
<tr>
<td>20</td>
<td>12</td>
<td>19</td>
<td>1/2</td>
<td>8</td>
<td>18</td>
<td>10</td>
<td>1/2</td>
</tr>
</tbody>
</table>

*Standard Finish: Painted
Available Finish: Hot Dip Galvanized*

### CERTIFICATION DATA

BY: [Name]
DATE: [Date]
DWG#: [Number]

### TAGS

- **MFG:** [Manufacturer Name]
- **HP:** [Horsepower]
- **QTY:** [Quantity]
- **WEIGHTS**
  - **BASE:** [Weight]
  - **MATERIALS**
    - **A:** [Material A]
    - **B:** [Material B]
    - **C:** [Material C]
    - **D:** [Material D]
- **FINISH**
  - **STANDARD - PAINT**
  - **OPTIONAL - GALVANIZED**

### REFERENCE:

- **PUMP:** [Pump Info]
- **BASE:** [Base Info]
- **REBAR:** [Rebar Info]
- **CONCRETE:** [Concrete Info]
- **TOTAL:** [Total Info]

### PROJECT:

- [Project Name]

### CUSTOM SPRINGS

- **3/8" DIAM 8" OCBW**

### ISOLATORS

- **3/8" DIAM 8" OCBW**

### BASE - CUSTOM

- **CIB 100 06/24/15**
- **CONCRETE INERTIA BASE - CUSTOM**
- **REF.**
- **D:** [Detail Info]
- **C:** [Component Info]
- **B:** [Base Info]
- **A:** [A-Info]

### MINIMUM HOUSEKEEPING PAD SIZE:

- [Pad Size]

### BY:

- [Name]

### DATE:

- [Date]

### DWG#:

- [Number]
TAG: ___________________ HP: ____________

MFG: ___________________  QTY: _______

WEIGHTS

PUMP: ____________ BASE: ____________ CONCRETE: ____________ TOTAL: ____________

MATERIALS

A: ERSM- B: ERSM- C: ERSM- D: ERSM-

ISOLATORS

FINISH: STANDARD - PAINT

OPTIONAL - GALVANIZED

PROJECT: _______________________________________

CUSTOMER: _______________________________________

BY: DATE: DWG#: ___________________

MINIMUM HOUSEKEEPING PAD SIZE: ____________

MINIMUM HOUSEKEEPING PAD SIZE: ____________
**CIB-ERSM**

**MINIMUM HOUSEKEEPING PAD SIZE:** 60"x40"

**WEIGHTS**

<table>
<thead>
<tr>
<th>MATERIALS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONCRETE:</td>
<td>675#</td>
</tr>
<tr>
<td>BASE:</td>
<td>135#</td>
</tr>
<tr>
<td>PUMP:</td>
<td>750#</td>
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</tbody>
</table>

**FINISH:**

- **STANDARD - PAINT**
- **OPTIONAL - GALVANIZED**

**ISOLATORS**

- A: ERSM-
- B: ERSM-
- C: ERSM-
- D: ERSM-

**CONCRETE INERTIA BASE**

CIB-ERSM 100 06/24/15

**PROJECT:** ________________________________

**CUSTOMER:** ________________________________

**ABC:**

- **DATE:** __________________
- **DRAWN:** __________________

**Novia**
A Division of C&P
1 Northwestern Dr.
Salem, NH 03079
Ph: 603-898-8600
Fax: 603-898-2755
sales@cp-novia.com

**CONCRETE INERTIA BASE**

CIB-ERSM 100 06/24/15

**TAG:**

**MFG:**

**HP:**

**QTY:**

**WEIGHTS**

<table>
<thead>
<tr>
<th>MATERIALS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONCRETE:</td>
<td>675#</td>
</tr>
<tr>
<td>BASE:</td>
<td>135#</td>
</tr>
<tr>
<td>PUMP:</td>
<td>750#</td>
</tr>
</tbody>
</table>

**FINISH:**

- **STANDARD - PAINT**
- **OPTIONAL - GALVANIZED**

**ISOLATORS**

- A: ERSM-
- B: ERSM-
- C: ERSM-
- D: ERSM-

**CONCRETE INERTIA BASE**

CIB-ERSM 100 06/24/15

**PROJECT:** ________________________________

**CUSTOMER:** ________________________________

**ABC:**

- **DATE:** __________________
- **DRAWN:** __________________

**Novia**
A Division of C&P
1 Northwestern Dr.
Salem, NH 03079
Ph: 603-898-8600
Fax: 603-898-2755
sales@cp-novia.com
MINIMUM HOUSEKEEPING PAD SIZE: 72"x45"

MINIMUM HOUSEKEEPING PAD SIZE: 78"x45"
MINIMUM HOUSEKEEPING PAD SIZE: ____________________________

1/2" Ø
FULLY WELDED  F4x4x1/4 PLATE
1/2"

PROJECT: ____________________________
CUSTOMER: ____________________________

SECURE PUMP TO BASE WITH (4) 1/2" ANCHORS

A: SM-
B: SM-
C: SM-
D: SM-

FINISH: STANDARD - PAINT
OPTIONAL - GALVANIZED

WEIGHTS
PUMP: _____________
BASE: _____________
REBAR: 3/8" Diam 8" OCBW
H/S BKTS: F4x4x1/4"

MATERIALS
A: SM-
B: SM-
C: SM-
D: SM-

TOTAL: _____________

PROJECT: ____________________________
CUSTOMER: ____________________________

CONCRETE INERTIA BASE
T-CIB 06/24/15

BY: ____________________________
DATE: ____________________________
Dwg#: ____________________________
MINIMUM EDGE DISTANCE (ALL SIDES)

MINIMUM RECOMMENDED HOUSING/KEEPING PAD SIZE

ATTACHMENT OPTIONS

MINIMUM EDGE DISTANCE (ALL SIDES)

ATTACHMENT OPTIONS
Notes:
1) For Restraint Type EQ-9 use (4) L3 x 3 x 9”
    4” Angles at connections to structure instead of
    45° angle clips

* By Others
Hilti’s, Nuts, Bolts,
Washers, & Beam Clamps

Concrete Deck
7 1/2”
4 1/2”
7 8”
3/4”Ø
(3 Holes)

4” Embed.
(2) 5/8” Hilti
“KB-III” Per Cable
Thimbal
7 x 19 x 1/4”
Cable
(2) 1/4” Cable Clips

Type EQ-9

SEISMIC RESTRAINT TYPES

<table>
<thead>
<tr>
<th>Type</th>
<th>Cable</th>
<th>Concrete Anchor</th>
<th>Embed (in.)</th>
<th>Weld Length*</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ-7</td>
<td>1/8”</td>
<td>3/8” HILTI</td>
<td>2 1/2</td>
<td>2</td>
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<tr>
<td>EQ-8</td>
<td>1/8”</td>
<td>5/8” HILTI</td>
<td>4 2</td>
<td></td>
</tr>
<tr>
<td>EQ-9</td>
<td>1/4”</td>
<td>(2) - 5/8” HILTI</td>
<td>4 2</td>
<td></td>
</tr>
</tbody>
</table>

* Weld length per angle clip are given as an optional attachment method - in lieu of concrete anchors should field conditions dictate.

SEISMIC RESTRAINT TYPES

<table>
<thead>
<tr>
<th>Type</th>
<th>Cable</th>
<th>Anchor Qty-Diam</th>
<th>Embed (in.)</th>
<th>Weld Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ-7</td>
<td>1/8”</td>
<td>(1) - 3/8”</td>
<td>2 1/2</td>
<td>2</td>
</tr>
<tr>
<td>EQ-8</td>
<td>1/8”</td>
<td>(1) - 5/8”</td>
<td>4 2</td>
<td></td>
</tr>
<tr>
<td>EQ-9</td>
<td>1/4”</td>
<td>(2) - 5/8”</td>
<td>4 2</td>
<td></td>
</tr>
</tbody>
</table>

Conc: Hilti KB-III (or equal), Steel: A307 Steel
Bolt or 1 1/4” Fillet Weld. Use type appropriate for structure, contact NAI if required.

Concrete Deck
7 1/2”
4 1/2”
7 8”
3/4”Ø
(3 Holes)

Thimbal
7 x 19 x 1/4”
Cable
(2) 1/4” Cable Clips

Type EQ-9

Attachment to Structure Details
Structural I-Beam
Double sided Beam Clamp
Angle Clip
Thimbal and (2) Cable Clips
7 x 19 Cable

Concrete Deck

OK NG NG

Threaded Rod
Nuts and Lock Washer
Double Sided Beam Clamp
Concrete

OK NG NG

Structural Steel
A-307 (Same Dia. as HILTI)
Bolted to Steel
Welded to Steel

Concrete Deck

OK NG NG

Threaded Rod
Nuts and Lock Washer
Double Sided Beam Clamp
Concrete

OK NG NG

Structural Steel
A-307 (Same Dia. as HILTI)
Bolted to Steel
Welded to Steel

Note: Install cable with 1/4” of slack
### Gripple Restraint Chart

**GS-12 SET:** (4) GS-12 GRIPPLES, (4) GS-12 END FITTINGS WITH 20’ OF 1/8” CABLE, AND (4) GS-12 EYELETS.

**GS-19 SET:** (4) GS-19 GRIPPLES, (4) GS-19 END FITTINGS WITH 20’ OF 3/16” CABLE, AND (4) GS-19 EYELETS.

<table>
<thead>
<tr>
<th>SEISMIC RESTRAINT TYPES</th>
<th>Type</th>
<th>Cable</th>
<th>Concrete Anchor</th>
<th>Embed. (in.)</th>
<th>Weld Length*</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS-12</td>
<td>1/8”</td>
<td>3/8” HILTI</td>
<td>2 1/2”</td>
<td>2”</td>
<td></td>
</tr>
<tr>
<td>GS-19</td>
<td>3/16”</td>
<td>5/8” HILTI</td>
<td>4”</td>
<td>2”</td>
<td></td>
</tr>
</tbody>
</table>

*Weld length per angle clip are given as an optional attachment method - in lieu of concrete anchors should field conditions dictate.

**Attachment to Structure Details**

- Structural Steel
- Threaded Rod
- Nuts and Lock Washer
- Concrete

**Gripper Installation Instructions**

1. Install cable with 1/4” of slack.
2. Use Gripple GS12 or Gripple GS19 End Fitting.
3. Double Sided Beam Clamp.
4. Bolt to Steel.
5. Welded to Steel.

---

### Structural I-Beam

- Double sided Beam Clamp
- Concrete Deck
- Structural Steel
- A307 (Same Dia. as HILTI)
- Bolted to Steel
- Welded to Steel

---

**Setstype**

<table>
<thead>
<tr>
<th>Equipment Tag</th>
<th>Restraint Type</th>
<th>Sets</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**EQUIPMENT TAG**

- A Division of C&P
- 1 Northwestern Dr.
- Salem, NH 03079
- Ph: 603-898-8600
- Fax: 603-898-2755
- sales@cp-novia.com

---

**SD-2PT 06/16/15**

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**SD-4PT 06/16/15**

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**Novia**

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**NOVIA | PAGE 69**
SEISMIC RESTRAINT TYPE KEY

1st Field 2nd Field 3rd Field 4th Field
TRADE MULTIPLE TYPE ORIENTATION
S = SHEETMETAL
M = MECHANICAL
E = ELECTRICAL
F = FIRE PROTECTION
P = PLUMBING

MAY BE LEFT BLANK When "M" is designated, two or more pipes, conduit, etc. will be tied together then restrained with a single restraint.

See Table below for listing of nine Types. Note: If Type is preceded by (2) this indicates two restraints are to be used at one location.

T = Transverse (Perpendicular to pipe/duct run)
L = Longitudinal (Along pipe run axis)
T/L = Transverse & longitudinal (Both ways)

T-M-X-O

SEE PAGES 2,3 & 4 OF DRAWINGS SSD-2001 FOR INSTALLATION DETAILS

SEISMIC RESTRAINT TYPES

<table>
<thead>
<tr>
<th>TYPE</th>
<th>RESTRAINT TYPE</th>
<th>CONCRETE ANCHOR</th>
<th>EMBED (IN.)</th>
<th>WELD LENGTH (IN.)</th>
</tr>
</thead>
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<tr>
<td>1</td>
<td>1/8&quot; DIA. CABLE BRACE</td>
<td>3/8&quot; HILTI KBIII</td>
<td>2-1/2&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>2</td>
<td>1/8&quot; DIA. CABLE BRACE</td>
<td>5/8&quot; HILTI KBIII</td>
<td>4</td>
<td>2&quot;</td>
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<td>3</td>
<td>1/4&quot; DIA. CABLE BRACE</td>
<td>(2) 5/8 HILTI KBIII</td>
<td>4</td>
<td>2&quot;</td>
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<tr>
<td>4</td>
<td>SINGLE ARM STRUT BRACE</td>
<td>3/8&quot; HILTI KBIII</td>
<td>2-1/2&quot;</td>
<td>2&quot;</td>
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<tr>
<td>5</td>
<td>SINGLE ARM STRUT BRACE</td>
<td>5/8&quot; HILTI KBIII</td>
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<tr>
<td>6</td>
<td>SINGLE ARM STRUT BRACE</td>
<td>(2) 5/8 HILTI KBIII</td>
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HILTI KBIII Kwik Bolts Are The Standard Anchor. 1/4" Fillet Weld Lengths Are Given As An Optional Attachment Method To Structural Steel In Lieu Of Concrete Anchors Should Field Conditions Require. The Same Diameter A-307 Bolts May Be Used For Attachment To Steel.

By: RR Date: 12/06/06 Dwg. No.: SSD-2001
Longitudinal Types:
- Riser Clamp
- U-Bolts
- 4L, 5L & 6L
- Double Sided Beam Clamp *
- Bolted to Attachment to Structure Details
- Threaded Rod
- Nuts and Lock Washer
- Steel
- Structural Concrete Anchors
  - Type 4 = 3 8" x 2 1/2" Embedment
  - Type 5 = 5 8" x 4" Embedment
  - Type 6 = (2) 5 8" x 4" Embedment
- Structural I-Beam Double sided Beam Clamp
- Angle Clip
- Steel
- Concrete Deck
- 1-5/8" Strut

Transverse Types:
- Clevis or Roller
- 1 5/8" Strut
- U-Bolts

Transverse & Longitudinal Types:
- Multiple(Restrained by a single restraint)
- Pipe/Conduit Clamps
- Attach Rods to Strut

Notes:
1) For Restraint Type 6 use (1) L3 x 3 x 9" 1/4" Angle at connection to structure instead of 45° angle clip.
2) Maximum Strut Length = 10'-0"
3) Strut to Clip Bolt Dia.
   - Type 4 & 5 = 1 2"
   - Type 6 = 5 8"

SSD-2001 Single Strut Seismic Restraint Types 4, 5, & 6
SD PIPE 4, 5, 6 12/06/06

SSD-2001 2 - Cable Seismic Restraint Types 1, 2, & 3
SD DUCT 1, 2, 3 12/06/06

** By Others
- Hilti's, Nuts, Bolts, Washers, & Beam Clamps

Notes:
1) For Restraint Type 6 use (2) L3 x 3 x 9" 1/4" Angles at connections to structure instead of 45° angle clips.
**CORRECT METHOD OF INSTALLING U-BOLT WIRE ROPE CLIPS**

1. Turn back specified length of rope from thimble and apply first clip one saddle width from seized dead end. Tighten nuts evenly to specified torque. Important: seat “live end” of wire rope (load carrying part) in saddle and position u-bolt over “dead end.”

2. Apply second clip close to the thimble without binding on it. Turn on nuts firmly but do not tighten yet to recommended torque.

3. Apply all other clips, equally spaced between first two clips.

4. Apply light tension and tighten all nuts evenly to specified torque.

**1/8” ROPE CLIPS**

- TURN BACK LENGTH = 3-1/4”
- QTY ROPE CLIPS = 2
- TORQUE ON NUTS = 4.5 FT-LBS

**1/4” ROPE CLIPS**

- TURN BACK LENGTH = 4-3/4”
- QTY ROPE CLIPS = 2
- TORQUE ON NUTS = 15 FT-LBS
## SSD-2001G

### Seismic Restraint Types

<table>
<thead>
<tr>
<th>Type</th>
<th>Restraint Type</th>
<th>Concrete Anchor</th>
<th>Embed (in.)</th>
<th>Weld Length (in.)</th>
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<tr>
<td>1</td>
<td>1/8&quot; Dia. Cable Brace</td>
<td>3/8&quot; Hilti KBIII</td>
<td>2-1/2&quot;</td>
<td>2&quot;</td>
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<tr>
<td>3</td>
<td>3/8&quot; Dia. Cable Brace</td>
<td>3/8&quot; Hilti KBIII</td>
<td>4</td>
<td>2&quot;</td>
</tr>
<tr>
<td>4</td>
<td>Single Arm Strut Brace</td>
<td>3/8&quot; Hilti KBIII</td>
<td>2-1/2&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>5</td>
<td>Single Arm Strut Brace</td>
<td>5/8&quot; Hilti KBIII</td>
<td>4</td>
<td>2&quot;</td>
</tr>
</tbody>
</table>

**Type 1:** (2) GS12 Gripples, GS12 End Fittings with 20' of 1/8" Cable and 92) GS12 Eyelets

**Type 2:** (2) GS19 Gripples, GS19 End Fittings with 20' of 3/16" Cable and 92) GS19 Eyelets

**Type 3:** (2) 1/4" Thimbles, (4) 1/4" Wire Rope Clips and (2) L3"x3"x9" Clips (for Concrete Anchors)

Hilti KBIII KWIK bolts are the standard anchor. Hilti weld lengths are given as an optional attachment method to structural steel in lieu of concrete anchors should field conditions require. The same diameter A-307 bolts may be used for attachment to steel.

---

**Seismic Restraint Type Key**

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<thead>
<tr>
<th>Letter</th>
<th>Description</th>
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<tbody>
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<td>S</td>
<td>Sheetmetal</td>
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<td>M</td>
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<td>E</td>
<td>Electrical</td>
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<tr>
<td>F</td>
<td>Fire Protection</td>
</tr>
<tr>
<td>P</td>
<td>Plumbing</td>
</tr>
</tbody>
</table>

**Notes:**

1. For Restraint Type 3 use (2) L3 x 3 x 9" 1/4" Angles at connections to structure instead of 45° angle clips

---

**Cable Gripple Seismic Restraint**

**Transverse Types:**

1T, 2T & 3T

**Longitudinal Types:**

1L, 2L & 3L

**Multiple (Restained by a single restraint):**

T/L = Transverse & longitudinal (Both ways)

**Note:** T/L restraints may be used in either a "T" or "L" orientation to increase the load holding capacity.

---

**Attachment to Structure Details**

- Concrete anchors must be placed in a concrete deck with a minimum embedment of 3/4" and 3 holes per anchor.
- Hilti's, nuts, bolts, washers, and beam clamps are used for attachment.

---

**By:** RR  
**Date:** 12/06/06  
**Page:** 2 of 4  
**Dwg. No.:** SSD-2001G
**SEISMOD**

**SIZE SPECIFICATIONS**

**PRODUCT INFORMATION**

**Function** - For bracing and securing suspended nonstructural equipment and components.

**Application** - Ideal for Transverse, Longitudinal, or 4-Way bracing of nonstructural components and equipment requiring seismic design, especially in essential facilities that are required for emergency operations in the aftermath of an earthquake. NOT suitable for use in chlorinated or swimming pool environments.

**Material Specification** - AISI 1050 Steel minimum UTS 725MPa pre-attached to cable via a zinc plated copper ferrule.

**Seismic Cable Bracing**

**Cable Bracing Kit:**

- Gripple Seismic Cable: Break strength certified, pre-stretched Gripple Seismic cable.
- Cable Diameter (in):
  - GS10 = 1,468
  - GS12 = 2,692
- Standard Bracket (GSS) or Retrofit Bracket (GSR)
- End Fittings:
  - 45º Eyelet - Zinc plated steel
  - End Fitting - Standard Bracket (GSS) or Retrofit Bracket (GSR)
- Seismic Fasteners:
  - AISI 1050 Steel minimum UTS 725MPa
  - Screws - Stainless Steel (Type 304)
  - Spring - Stainless Steel (Type 302)
  - Wedge - Sintered steel hardened to min. 56 Rockwell C
  - Housing - Type A2 Zinc
- Design Strength (LRFD*): GS10 = 350 lbs; GS12 = 1,050 lbs; GS19 = 2,100 lbs; GS25 = 3,850 lbs
- Verification of cable diameter: GS10 = Red; GS12 = Blue; GS19 = Green; GS25 = Purple
- Loose Brackets:
  - View the submittal data at cp-novia.com for information on GS10, GS12, GS19, and GS25.

**End Fittings**

- 45º Eyelet - Zinc plated steel
- End Fitting - Standard Bracket (GSS) or Retrofit Bracket (GSR)
- Cable Diameter (in):
  - GS10 = 1,468
  - GS12 = 2,692
  - GS19 = 3,850
  - GS25 = 5,050
- Standard Bracket (GSS) or Retrofit Bracket (GSR)
- End Fitting - Standard Bracket (GSS) or Retrofit Bracket (GSR)

**Seismic Bracing**

- Ideal for Transverse, Longitudinal, or 4-Way bracing of nonstructural components and equipment requiring seismic design, especially in essential facilities that are required for emergency operations in the aftermath of an earthquake. NOT suitable for use in chlorinated or swimming pool environments.

**Application Examples**

- **Transverse Bracing**
- **Longitudinal Bracing**
- **4-Way Bracing**

**Note:** Type T/L combines Type T and Type L at one location.

**Attachment to Structure Details**

- **Threaded Rod Anchor and Beam Clamp or Rod End Clamp (Ceiling or Window Anchor)**
- **Concrete Deck**
- **Seismic Cable Installation Instructions for T/L Cable**
- **Seismic Rod Clip Installation Instructions for T/L Cable**
- **Seismic Rod Clip Installation Instructions for Type L**

**Notes:**

1. For Restraint Type 3 use (2) L3 x 3 x 9" 2. Angles at connections to structure instead of 45° angle clips

* By Others

- Hill’s Nuts, Bolts, Washers, and Beam Clamps

**Seismic Bracing**

- **Standard Bracket**
- **Retrofit Bracket**

**Gripple Inc:**

- 1611 Emily Lane | Aurora, IL 60502 | USA
- Tel: 1 866 474 7753 Fax: 1 866 474 0080

**SDUCT 1, 2, 3 120606**

**Gripples**

- **Gripples**
- **Grippe Inc**
- **Gripplespec.com**
- **Gripplesemisismic.com**

**SEIS-USA-SUBMIT**

**VISIT US AT CP-NOVIA.COM FOR MORE INFORMATION.**

**NOVIA | PAGE 79**
NEOPRENE ELEMENT

NEOPRENE CUP

1/2" EYE BOLT

1/2" EYE BOLT

30°

Threaded rod sizes shown will be used unless otherwise specified.

Hangers are pre-compressed to 65% of Rated Capacity. When hangers are under full operational load, springs should compress an additional 1/4".

Nut "B" and washer should be free. Loosen Nut "B" if it is not free. If pipe elevation changes (moves upwards) compensate by loosening Nut "A".

Threaded rod sizes shown will be used unless otherwise specified.

Hangers are pre-compressed to 65% of Rated Capacity. When hangers are under full operational load, spring should compress an additional 1/4".

Nut "B" and washer should be free. Loosen Nut "B" if it is not free. If pipe elevation changes (moves upwards) compensate by loosening Nut "A".
**SPRING DATA**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>RATED CAPAC (lbs)</th>
<th>RATED DEFL (in)</th>
<th>SPRING CONST (lbs/in)</th>
<th>COLOR</th>
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<tbody>
<tr>
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<td>11.25</td>
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<td>2B-45</td>
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<td>22.5</td>
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<td>2B-140</td>
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<td>2B-200</td>
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<td>2.00</td>
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</tbody>
</table>

**Springs have a 50% overload capacity.**

- Standard Finish: Galvanized Steel
- Available Option: Pre-compressed

Threaded rod sizes shown will be used unless otherwise specified.

Hangers are pre-compressed to 65% of Rated Capacity.

When hangers are under full operational load, springs should compress an additional 1 1/2” ±.

Nut “B” and washer should be free. Loosen Nut “B” if it is not free. If pipe elevation changes (moves upwards) compensate by loosening Nut “A”.

**CERTIFICATION DATA**

**RSH-D**

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<th>SIZE</th>
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<th>RATED DEFL (in)</th>
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**Springs have a 50% overload capacity.**

- Standard Finish: Galvanized Steel
- Available Option: Pre-compressed

Threaded rod sizes shown will be used unless otherwise specified.

Hangers are pre-compressed to 65% of Rated Capacity.

When hangers are under full operational load, springs should compress an additional 2 1/2” ±.

Nut “B” and washer should be free. Loosen Nut “B” if it is not free. If pipe elevation changes (moves upwards) compensate by loosening Nut “A”.

**CERTIFICATION DATA**
**CERTIFICATION DATA**

BY: ______________________________ DATE: ______________________________ DWG#: ______________________________

**SPRING DATA**

**RATED CAPAC (LBS) | RATED DEFL (IN) | SPRING CONST (LBS/IN) | COLOR**

<table>
<thead>
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Springs have a 50% overload capacity. Standard Finish: Galvanized Steel

Available Option: Pre-compressed

Threaded rod sizes shown will be used unless otherwise specified.

Hangers are pre-compressed to 65% of Rated Capacity. When hangers are under full operational load, springs should compress an additional 2/3.

Nut "B" and washer should be free. Loosen Nut "B" if it is not free. Loosen Nut "B" if it is not free. If pipe elevation changes (moves upwards) compensate by loosening Nut "A".

**SPRING & NEOPRENE HANGER SPRING DATA**

**RATED DEFL (IN) | RATED CAPAC (LBS) | SPRING COMB DEFL (IN) | SPRING CONST (LBS/IN) | COLOR**

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<td>2400</td>
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</table>

Springs have a 50% overload capacity. Standard Finish: Hot Dipped Galvanized

Available Finish: Pre-compressed

Hangers are pre-compressed to 65% of Rated Capacity. When hangers are under full operational load, springs should compress an additional 2/3.

Nut "B" and washer should be free. Loosen Nut "B" if it is not free. If pipe elevation changes (moves upwards) compensate by loosening Nut "A".

---

**RSH-E 3° DEFLECTION**

**SPRING HANGER**

**RSNH 1° DEFLECTION**

**SPRING & NEOPRENE HANGER**

**RSH-E 100 09/29/16**

**RSNH 100 09/29/16**

---

**RSNH DIMENSIONS (IN)**

**SIZE | A | B | C | D | H | T | RP | TR**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>H</th>
<th>W</th>
<th>B</th>
<th>T</th>
<th>D</th>
<th>RP</th>
<th>TR</th>
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<tr>
<td>A</td>
<td>1.00</td>
<td>1.50</td>
<td>1.00</td>
<td>1.50</td>
<td>3/4</td>
<td>3/4</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>2.50</td>
<td>3.00</td>
<td>3.75</td>
<td>3.75</td>
<td>3/4</td>
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<td>C</td>
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Springs have a 50% overload capacity.

RSH-E 3° Deflection combines spring and neoprene element deflection.

Published ratings allow for 30% additional travel to solid. For 50% additional travel, multiply Rated Capacity and Rated Deflection by 0.841.

Hangers are pre-compressed to 65% of Rated Capacity. When hangers are under full operational load, springs should compress an additional 2/3.

Nut "B" and washer should be free. Loosen Nut "B" if it is not free. If pipe elevation changes (moves upwards) compensate by loosening Nut "A".

---

**CERTIFICATION DATA**

BY: ______________________________ DATE: ______________________________ DWG#: ______________________________

** footnote:**

¹Springs have a 50% overload capacity.

²Rated Deflection combines spring and neoprene element deflection.

³Published ratings allow for 30% additional travel to solid.

For 50% additional travel, multiply Rated Capacity and Rated Deflection by 0.841.

C - Painted

A - Hot Dipped Galvanized

B - Galvanized Steel

G - Galvanized Steel

R - Red

O - Orange

G - Green
**RSNH-2B**

2" DEFLECTION  
SPRING & NEOPRENE  
HANGER  
RSNH-2B 110 09/20/16

<table>
<thead>
<tr>
<th>THREADED ROD (BY OTHERS) MAX Ø3/4&quot;</th>
<th>NEOPRENE ELEMENT</th>
<th>NUT &quot;A&quot;</th>
<th>THREADED ROD MAX Ø3/4&quot;</th>
<th>NEOPRENE CUP</th>
<th>NUT &quot;B&quot;</th>
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</thead>
<tbody>
<tr>
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<td>5/8&quot;</td>
<td>4&quot;</td>
<td>3/4&quot;</td>
<td>2 1/2&quot;</td>
<td>3 1/2&quot;</td>
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**SERTIFICATION DATA**

**RSNH-D**

2" DEFLECTION  
SPRING & NEOPRENE  
HANGER  
RSNH-D 100 09/29/16

<table>
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<th>THREADED ROD (BY OTHERS) MAX Ø1&quot;</th>
<th>NEOPRENE ELEMENT</th>
<th>NUT &quot;A&quot;</th>
<th>NEOPRENE CUP</th>
<th>NUT &quot;B&quot;</th>
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</thead>
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<tr>
<td>12&quot;</td>
<td>4&quot;</td>
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<td>3 1/2&quot;</td>
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**CERTIFICATION DATA**

**SPRING DATA**

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<tr>
<th>SIZE</th>
<th>RATED CAPAC (LBS)</th>
<th>RATED DEF (IN)</th>
<th>SPRING CONST (LBS/IN)</th>
<th>COLOR</th>
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<tr>
<td>D-236</td>
<td>235</td>
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<td>D-352</td>
<td>352</td>
<td>2.75</td>
<td>150</td>
<td>RED</td>
</tr>
<tr>
<td>D-410</td>
<td>400</td>
<td>2.35</td>
<td>205</td>
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<tr>
<td>D-624</td>
<td>624</td>
<td>2.48</td>
<td>305</td>
<td>GREEN</td>
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<td>D-840</td>
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**SPRING DATA**

<table>
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<th>RATED DEF (IN)</th>
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<td>ORANGE</td>
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</tr>
<tr>
<td>D-410</td>
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<td>2.35</td>
<td>205</td>
<td>BLUE</td>
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<tr>
<td>D-624</td>
<td>624</td>
<td>2.48</td>
<td>305</td>
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<tr>
<td>D-840</td>
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<td>2.40</td>
<td>420</td>
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<td>D-1000</td>
<td>1000</td>
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<td>550</td>
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</table>

**Springs have a 50% overload capacity.**

**Rated Deflection combines spring and neoprene element deflection.**

**Standard Finish: Paint**

**Available Finish: Hot Dip Galvanized**

**Threaded rod sizes shown will be used unless otherwise specified.**

**Hangers are pre-compressed to 65% of Rated Capacity. When hangers are under full operational load, springs should compress an additional 1/4" ±.**

**Nut "B" and washer should be free. Loosen Nut "B" if it is not free. If pipe elevation changes (moves upwards) compensate by loosening Nut "A".**

**Springs have a 50% overload capacity.**

**Rated Deflection combines spring and neoprene element deflection.**

**Standard Finish: Galvanized Steel**

**Threaded rod sizes shown will be used unless otherwise specified.**

**Hangers are pre-compressed to 65% of Rated Capacity. When hangers are under full operational load, springs should compress an additional 1/4" ±.**

**Nut "B" and washer should be free. Loosen Nut "B" if it is not free. If pipe elevation changes (moves upwards) compensate by loosening Nut "A".**

---

**VISIT US AT CP-NOVIA.COM FOR MORE INFORMATION.**

**NOVIA | PAGE 91**
SPRING DATA

<table>
<thead>
<tr>
<th>SIZE</th>
<th>RATED CAPAC (LBS)</th>
<th>RATED DEFL (IN)</th>
<th>SPRING CONST (LBS/IN)</th>
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<td>E-608</td>
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Springs have a 50% overload capacity.

Rated Deflection combines spring and neoprene element deflection.

Standard Finish: Galvanized Steel

Threaded rod sizes shown will be used unless otherwise specified.

Hangers are pre-compressed to 65% of Rated Capacity. When hangers are under full operational load, springs should compress an additional 1\(\frac{1}{4}\)" ±.

Nut "B" and washer should be free. Loosen Nut "B" if it is not free. If pipe elevation changes (moves upwards) compensate by loosening Nut "A".

CERTIFICATION DATA

BY: DATE: DWG#:  

ACH PRECOMPRESSED CEILING HANGER 1" DEFLHION  

SPRING DATA

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<td>25</td>
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<td>A-103</td>
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Springs have a 50% overload capacity.

Standard Finish: Galvanized Steel
CERTIFICATION DATA

BY: ____________________________ DATE: ___________ DWG#: ___________

1. Ends of steel hooks interlocked and swaged in place to provide falsafe construction.
2. High tensile gum rubber insert with antizoonant added for long life.
3. 11 gage cold drawn steel wire.
5. All metal parts zinc plated to prevent corrosion.
6. Gimbled construction for even load distribution.
7. Rubber collar prevents metal-to-metal contact.
8. Clearance for up to Ø3/16" rod.

RESILIENT HANGER ARH-100 7/28/16

ARH

RESILIENT ELEMENT DATA

<table>
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REVIEW CERTIFICATION DATA

PRECOMPRESSED CEILING HANGER 2" DEFLECTION ACH 100 9/29/16

SPRING DATA

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<td>70</td>
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<table>
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<th>SPRING O.D.</th>
<th>FREE HGT</th>
<th>RATIO OD/DH</th>
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<td>2.00&quot;</td>
<td>3.68&quot;</td>
<td>1.19 MIN</td>
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</table>

Springs have a 50% overload capacity. Standard Finish: Galvanized Steel

CERTIFICATION DATA

BY: ____________________________ DATE: ___________ DWG#: ___________

1. Ends of steel hooks interlocked and swaged in place to provide failsafe construction.
2. High tensile gum rubber insert with antizoonant added for long life.
3. 11 gage cold drawn steel wire.
5. All metal parts zinc plated to prevent corrosion.
6. Gimbled construction for even load distribution.
7. Rubber collar prevents metal-to-metal contact.
8. Clearance for up to Ø3/16" rod.

LOAD-DEFLECTION CURVES

LOAD IN POUNDS

STATIC DEFLECTION IN INCHES

LOAD-DEFLECTION CURVES

LOAD IN POUNDS

LOAD-DEFLECTION CURVES

LOAD IN POUNDS

LOAD IN POUNDS

LOAD IN POUNDS
**CERTIFICATION DATA**

**UNIT**

**TAG**

**EACH PAIR**

**RATED CAPAC**

**RATED DEFL CONST**

**COLOR**

<table>
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<th>SIZE</th>
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<th>SPRING CAP (LBS)</th>
<th>COLOR</th>
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<tbody>
<tr>
<td>TR-A</td>
<td>2.500”</td>
<td>2.500”</td>
<td>250</td>
<td>ORG</td>
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<tr>
<td>TR-B</td>
<td>2.00”</td>
<td>2.375”</td>
<td>200</td>
<td>RED</td>
</tr>
<tr>
<td>TR-C</td>
<td>1.50”</td>
<td>1.50”</td>
<td>150</td>
<td>BLK</td>
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<tr>
<td>TR-D</td>
<td>1.00”</td>
<td>1.00”</td>
<td>100</td>
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**TR-DIMENSIONS (IN)**

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<th>SIZE</th>
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<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
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<tr>
<td>TR-A</td>
<td>2 1/2</td>
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<td>3/8</td>
<td>1/2</td>
<td>1/4</td>
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<tr>
<td>TR-B</td>
<td>3</td>
<td>3</td>
<td>1 3/4</td>
<td>1 1/4</td>
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<td>1/2</td>
<td>5/8</td>
<td>3/8</td>
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</table>

*Springs have a 50% overload capacity.*
### NEOPRENE - WAFFLE PAD

**NPW 516 7/28/16**

**Features:**
- "Waffle Pad" design with built-in suction cups on both sides
- No bolting required
- Easy to cut

**Material:** Neoprene - 45 Duro

**Maximum Loading:** 30 lbs. / sq. in.

**Working Range:** 15 to 30 lbs. / sq. in.

**CERTIFICATION DATA**

**TAG _______________________________________**

**UNIT ________________________________**

**MATERIAL FOR ONE SET _____ SET(S) REQUIRED**

**MOUNT LOCATION PLAN VIEW**

**CERTIFICATION DATA**

**BY: ___________________ DATE: __________ DWG#: ________**

**PROJECT: ___________________________________________**

**CUSTOMER: _________________________________________**

---

**HG-63 Bushing**

**05/03/07**

**CERTIFICATION DATA**

**TAG _______________________________________**

**UNIT ________________________________**

**MATERIAL FOR ONE SET _____ SET(S) REQUIRED**

**MOUNT LOCATION PLAN VIEW**

---

**PROJECT: ___________________________________________**

**CUSTOMER: _________________________________________**

**Certification Data**

**BY: ___________________ DATE: __________ DWG#: ________**

**HG-63 Bushing**

**05/03/07**

**HG-63 Bushing**

**05/03/07**

**Certification Data**

**BY: ___________________ DATE: __________ DWG#: ________**

**HG-63 Bushing**

**05/03/07**

**Certification Data**

**BY: ___________________ DATE: __________ DWG#: ________**

---

**VISIT US AT CP-NOVIA.COM FOR MORE INFORMATION.**

---
NPR 38
NATURAL RUBBER PAD-RIBBED
NPR 38 7/28/16

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MAX CAPAC. (LBS)</th>
<th>SIZE (IN)</th>
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</thead>
<tbody>
<tr>
<td>NPR 38 18 x 18 x 3/8</td>
<td>19,440</td>
<td>18 x 18 x 3/8</td>
</tr>
<tr>
<td>NPR 38 12 x 12 x 3/8</td>
<td>8,640</td>
<td>12 x 12 x 3/8</td>
</tr>
<tr>
<td>NPR 38 8 x 8 x 3/8</td>
<td>3,840</td>
<td>8 x 8 x 3/8</td>
</tr>
<tr>
<td>NPR 38 6 x 6 x 3/8</td>
<td>2,160</td>
<td>6 x 6 x 3/8</td>
</tr>
<tr>
<td>NPR 38 3 x 3 x 3/8</td>
<td>960</td>
<td>3 x 3 x 3/8</td>
</tr>
<tr>
<td>NPR 38 4 x 4 x 3/8</td>
<td>540</td>
<td>4 x 4 x 3/8</td>
</tr>
<tr>
<td>NPR 38 2 x 2 x 3/8</td>
<td>240</td>
<td>2 x 2 x 3/8</td>
</tr>
</tbody>
</table>

Any size available

Material: Natural Rubber 80 Duro
Maximum Loading: 60 lbs. / sq. in.
Working Range: 30 to 60 lbs. / sq. in.

Features:
* Alternate High-Low rib construction
* No bolting required
* Easy to cut

NPW 75
NEOPRENE - WAFFLE PAD
NPW 75 7/28/16

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MAX CAPAC. (LBS)</th>
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<td>NPW 75 12 x 12 x 3/4</td>
<td>8,640</td>
<td>12 x 12 x 3/4</td>
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<tr>
<td>NPW 75 8 x 8 x 3/4</td>
<td>3,840</td>
<td>8 x 8 x 3/4</td>
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<tr>
<td>NPW 75 6 x 6 x 3/4</td>
<td>2,160</td>
<td>6 x 6 x 3/4</td>
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<tr>
<td>NPW 75 4 x 4 x 3/4</td>
<td>960</td>
<td>4 x 4 x 3/4</td>
</tr>
<tr>
<td>NPW 75 2 x 2 x 3/4</td>
<td>240</td>
<td>2 x 2 x 3/4</td>
</tr>
</tbody>
</table>

Any size available in 1" increments

Material: High Quality Ozone & Water Resistant 55 Duro Elastomer Blend
Maximum Loading: 60 lbs. / sq. in.
Working Range: 15 to 55 lbs. / sq. in.

Features:
* "Waffle Pad" design with built-in suction cups on both sides
* No bolting required
* Easy to cut
1. DEFINITIONS
In these Terms of Sale ("Terms") the following words shall have the following meanings (unless the context otherwise requires): "Company" means Novia - a division of Carpenter & Paterson, a Delaware corporation; "Contract" means any purchase order, Sales agreement, or other agreement for the sale of Goods between the Company and the Customer to which these Terms apply, "Customer" means the person, firm or company who has placed an order for Goods from the Company; "Delivery Point" means the Company's address or such other address as the Company may specify to the Customer; and "Goods" means all material goods; and "Services" means intangible products to be supplied under the Contract to the Customer by the Company.

2. GENERAL
2.1 Any quotation is not an offer to sell Goods. All orders for the Customer for the Goods ("Orders"), if accepted by Company in its sole discretion, will be accepted subject only to these Terms. DIFFERENT OR ADDITIONAL TERMS PROPOSED BY CUSTOMER ON OR IN CONNECTION WITH CUSTOMER'S PURCHASE ORDER FORMS OR OTHER DOCUMENTATION, SHALL NOT APPLY TO THE PURCHASE OF GOODS HEREUNDER AND ARE HEREBY EXPRESSLY REJECTED AND SHALL NOT BECOME PART OF THE TRANSACTION. COMPANY'S AGREEMENT TO SELL GOODS TO THE CUSTOMER IS EXPRESSLY LIMITED TO THESE TERMS AND, IF APPLICABLE, A WRITTEN AND SIGNED SUPPLY AGREEMENT BETWEEN THE CUSTOMER AND COMPANY TO WHICH THESE TERMS ARE ATTACHED.

2.2 If subsequent to this Contract, any sale is concluded with the same Customer, the terms, text, program, electronically or orally, or by any combination of these, without express reference to these Terms, these Terms shall apply unless expressly modified in writing, and signed by both the Company and Customer.

2.3 Any statement or representation by the Company or its employees or agents concerning which the Customer proposes to change, must be set out in writing and signed by both parties. Any statement or representation which is not so confirmed in writing is followed or acted upon entirely at the Customer’s own risk. For the avoidance of doubt, illustrations, weights, measures, performance capabilities, application suitability information and other data set out in the sales literature of the Company are statements of opinion and are provided for information only and form no part of the Contract.

2.4 Quotations shall be available for acceptance by the Customer for a maximum of sixty (60) days from the date of issue by the Company and may be withdrawn by the Company by written or oral notice to the Customer at any time prior to acceptance of the Order by the Company. Support delivery dates quoted may be affected by delays in placing an Order.

2.5 Verbal, telephone, fax, or email Orders will be executed at the Customer’s sole risk and Company will make every effort to confirm in writing receipt by the Company within 72 hours. No order for Goods shall be deemed to have been accepted by Company unless written acknowledgement of acceptance is received by the Customer from the Company or the Order is processed by the Company.

2.6 No Order which has been accepted by the Company may be cancelled by the Customer except with the agreement in writing of the Company and the Customer shall indemnify the Company in full against all losses (including loss of profit), costs (including the cost of all labor and materials used), damages, charges and expenses incurred by the Company as a result of cancellation.

2.7 The Company may cancel an Order at any time by serving notice in writing on the Customer if it does not receive, on request, satisfactory (in the Company's sole opinion) credit references in relation to the Customer. If the Company cancels an Order pursuant to this Section it shall have no liability whatsoever for any liabilities, losses, damages, costs or expenses whatsoever incurred, suffered or paid by the Customer as a result of or in connection with such cancellation.

2.8 Seller cannot accept any return of goods unless its written permission has been first obtained. Credit will be allowed on the basis of the price charged for the goods less a 20% restocking fee. Any freight charges allowed or paid by Seller. Goods not in first class saleable condition are subject to refusal or higher restocking charges, at the option of Seller. Special Order, non-standard or fabricated goods are not subject to cancellation or return except as specifically specified in writing at time of order.

3. PRICES
3.1 In the supply of Goods, prices do not include the price of delivery or of any applicable packaging or any other applicable taxes or governmental impositions unless otherwise stated in writing by the Company, which taxes, impositions and duties shall be the sole responsibility of the Customer. All prices are subject to the addition of any applicable sales tax.

3.2 The Company reserves the right at any time prior to delivery, to increase the price of the Goods to reflect any increase in the cost to the Company which is due to any factor beyond the control of the Company (including but not limited to, any foreign exchange fluctuation, currency regulation, alteration of duties, significant increase in the costs of labor, materials or any other costs of manufacture), any change in delivery dates, quantities or specifications for the Goods which is requested by the Customer, or any delay caused by any instructions of the Customer or failure of the Customer to give the Company adequate information or instructions.

4. PAYMENT
4.1 Subject to Section 4.2 below, payment for the price of the Goods is due in U.S. Dollars in cash or ACH funds no later than thirty (30) days following shipment of the Goods, unless otherwise agreed in writing.

4.2 If the Customer wrongfully fails to take delivery of the Goods, the Company shall be entitled to invoice for payment by the Customer for the contract price.

4.3 No payment shall be deemed to have been received until the Company has received cleared funds.

4.4 In the event of default in payment by the Customer, the Company shall be entitled (without prejudice to any other rights which it may have under these Terms or otherwise) to charge interest on a daily basis (after as well as before judgment) on any amount outstanding at the rate of four percent (4%) above the prime rate published by JPMorgan Chase Bank from time to time.

4.5 In the event of any dispute, the Customer shall not be entitled to make any payment of the price of the Goods or any payments or to any right of set-off, deduction, counterclaim, reduction or otherwise against any payment due to the Company under any Contract.

4.6 In respect of Goods sold for export, unless otherwise agreed in writing, payment should be made by irrevocable letter of credit confirmed with a clearing bank approved by the Company, or payment prior to fabrication or shipment.

4.7 Time for payment shall be of the essence of the Contract.

4.8 All payments payable to the Company under the Contract shall become due immediately on its termination.

5. DELIVERY
5.1 Unless otherwise agreed in writing by the Company, delivery shall be deemed to take place when the Goods are made available by the Company at the Delivery Point, for collection by the Customer or its carrier at the Company’s premises ("Delivery").

5.2 Any and all dates and periods specified by the Company for Delivery are estimates only and do not constitute fixed times for delivery. Delivery shall not be of the essence of the Contract and shall not be made of the essence by notice. The Company shall have no liability for any damages, losses, costs or expenses whatsoever or in connection with the failure by the Company to meet any delivery times specified in the Order. The Customer shall have no right to cancel an order for a failure of the Company to meet any delivery times.

5.3 The Company will endeavor to comply with any reasonable request by the Customer for postponement of Delivery but shall be under no obligation to do so and the Customer is obliged to take Delivery at such date and time as specified by the Company. Where postponement is agreed by the Company in writing the Customer shall, if required, pay all costs and expenses including a reasonable charge for storage occasioned thereby and all costs incurred by the Company in relation to any insurance payments reasonably made by it. The Company reserves the right to deliver the Goods to the Customer in partial shipments. Where the Goods are delivered in partial shipments, each Delivery shall constitute a separate contract and failure by the Company to deliver any one or more of the partial shipments in accordance with these Terms or any claim by the Customer in respect of any one or more installments shall not entitle the Customer to treat the Contract as a whole as repudiated.

5.4 The date for Delivery shall in every case be dependent upon prompt receipt of all necessary information, final instructions or approvals from the Customer.

5.5 If the Customer is ordering Goods for Delivery outside of the country of manufacture by the Company, such Goods may be subject to import duties and taxes which are levied when the Goods reach the specified destination. The Customer will be responsible for the payment of such import duties and taxes. The Customer will comply with all laws and regulations of the country for which the Goods are destined and the Company will not be liable for any breach of those laws.

5.6 The Customer shall (and shall procure that its subcontractors and agents shall): (a) Strictly follow all instructions and installation materials related to the Goods and not make any alteration, modification, addition to the Goods or packaging (and any alteration of the Goods, or use of non-approved parts, products or packaging with the Goods, shall be a material breach of these Terms and voids any warranties made by the Company for the Goods).
6. RISK AND TITLE
6.1 Title to the Goods will pass to Buyer upon Buyer’s receipt of monies for the Goods.
6.2 Unless otherwise agreed between the Company and the Customer in writing, risk of damage to or loss of the Goods shall pass to the Customer upon Shipment. When Goods are transported by the Company’s own vehicles, Delivery shall be deemed to take place at the moment the Goods are lifted from the Company’s vehicle.

6.3 No claim for Goods damaged in transit will be considered by the Company unless the Company used its own transport for Delivery and/or unless:
(a) An appropriately qualified signature, e.g. “Goods received damaged, (signed)” is clearly made by the Customer on the Delivery note or at the Shipment Point or where a Company employee or the Company’s representative is present;
(b) The Company is advised in writing per motor carrier rules; unless modified by contract;
(c) The Company is advised in writing within three days of receipt of Goods for ocean carriers.

6.4 No allowance for claims for short deliveries will be made unless the Company is given an opportunity for verifying same within one (1) week of receipt.

6.5 For the avoidance of doubt, where the Customer collects the Goods from the Shipment Point or where a third party delivers the Goods, the Company shall not have any liability to the Customer for any Goods damaged in transit.

7. WARRANTY AND LIABILITY
7.1 Company has provided its Goods under normal conditions; however, Company does not represent or warrant that the results of those conditions would necessarily avoid injury or damage to property resulting from any impact, collision or contact with the Goods or nearby hazards or objects by any vehicle, equipment, object or person, misuse for which it was not intended, or failure of the Customer to strictly comply with Section 5.6.

7.2 Company warrants only that the Goods and any component part manufactured by the Company will be free from defects in material or workmanship during the Warranty Period (as defined below).

7.3 THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

7.4 For defects reported during the Warranty Period, Company will, at Company’s election, refund, repair or replace free of charge the Goods or component part manufactured by Company that contains such a defect.

7.5 This Warranty is made to the direct Buyer from the Company and does not extend to any other person or entity and is not assignable, except that this warranty will transfer to a commercial buyer, buying directly from a Customer who is an authorized distributor of the Company and party to a distributor or Sales agreement with Company.

7.6 Any claim with respect to the Goods and any component parts manufactured by the Company shall be deemed waived by the Customer unless Company is notified in writing, in the case of defects apparent on visual inspection, within sixty (60) days from the delivery date or, in the case of defects not apparent on visual inspection within twelve (12) months from the said delivery date (such 60 days or 12 months, as applicable, the “Warranty Period”).

7.7 THE FOREGOING WARRANTY shall not apply (a) if the Goods have been subject to improper storage, accident, misuse or unauthorized modifications or alterations, or have not been installed or operated in accordance with procedures approved by the Company, or (b) to any components manufactured by the Customer or a third party not approved by the Company.

7.8 The Customer shall indemnify and keep the Company indemnified in full against all and any direct, indirect or consequential liabilities (all losses, claims, damages, costs and expenses (including all legal and other professional expenses) awarded against or arising out of or in connection with any breach of the Contract by the Customer and death or personal injury to the Company’s employees or agents while such employees or agents are on any premises of the Customer in connection with the Contract. Without limiting the foregoing, the Customer shall indemnify the Company against all claims by any third parties for any claims, loss, damage or expense incurred or paid by the Customer or any of its obligations under these Terms, including without limitation, any modification, misuse, or unapproved alteration, or use of non-approved components with the Goods.

8. TERMINATION
8.1 The Company shall be entitled, without prejudice to the Company’s other rights and remedies, either to terminate wholly or in part any or every Contract between the Company and the Customer and/or to suspend any further deliveries of Goods in any of the following circumstances:
(a) Non-compliance by the Customer with the Company’s terms of payment;
(b) If the Customer has failed to provide a letter of credit or guarantee or any other security required by the Contract reasonably requested by Company; or
(c) Upon the Customer’s dissolution, insolvency, filing of a voluntary or involuntary petition for bankruptcy, appointment by a court of a temporary or permanent receiver, trustee or custodian for the Customer’s business, or an assignment for the benefit of creditors, of the Customer;
(d) The Customer becomes unable to satisfy its debts as they fall due or threatens to cease to carry on business;
(e) Any person or any connected person commits any breach of this or any other Contract whenever made between the Customer and the Company; or
(f) If there has been, or the Company suspects that there has been, a breach or there has been a breach of any of the provisions of Section 13 below.

9. CONFIDENTIALITY AND INTELLECTUAL PROPERTY RIGHTS
9.1 All intellectual property, including without limitation, drawings, installation instructions, documents, confidential records, computer software and other information supplied by the Company or otherwise obtained by the Company, whether produced by itself or a third party, shall be treated by the Company as trade secrets and is protected by the intellectual property laws of the Company. The Customer agrees that the Company will have the right to proceed against the Customer for any infringement of any of the Company’s intellectual property rights.

10. FORCE MAJEURE
10.1 In the event of the performance of any obligation by the Company being prevented, delayed or in any way interfered with by war, civil unrest, strikes, lock-outs, accidents, flood, fire, explosion, or by any other cause beyond its reasonable control (including the delay or failure to supply of any suppliers of the Company and Company being prevented, delayed or in any way interfered with by war, civil unrest, strikes, lock-outs, accidents, flood, fire, explosion, or by any other cause beyond its reasonable control (including the delay or failure to supply of any suppliers of the Company), the Company may suspend or treat as impossible the performance of any obligation to the Customer without liability for any loss.

11. HEALTH AND SAFETY
The Customer agrees to pay due regard to any information supplied by the Company relating to the use for which the Goods are designed or have been tested or concerning conditions necessary to ensure that they will be safe and without risk to health at all times when they are being set, used, cleaned, serviced or maintained by any person and the Customer undertakes to take such steps as may be specified by such information or otherwise necessary to ensure that as far as is reasonably practicable the Goods will be safe and without risk to health at all times as mentioned above.

12. TESTING AND INSPECTION
12.1 Testing and inspection if specified by the Customer or his agent shall be at the Company’s discretion (at the Customer’s expense) and such testing and
inspection shall be final and conclusive as to the results thereof.

12.2 The Company shall not be obliged to produce test and performance certificates or safety critical certificates unless requested by the Customer and accepted by the Company in writing.

12.3 In addition to any costs incurred by the Company in testing the Goods the Customer shall pay for all test pieces which comply with specification.

13. COMPLIANCE

13.1 The Customer shall comply with all relevant laws, including any applicable anti-corruption laws in connection with the Contract and the Company’s business and shall immediately notify the Company if it discovers or suspects that any of its officers, directors, employees or representatives are acting or have acted in a way which violates such laws.

13.2 The Customer acknowledges that the Company has a code of responsible business; The Hill & Smith Holdings PLC Code of Business Conduct ("HS Code of Conduct"). The HS Code of Conduct together with the Company’s Anti-Bribery and Corruption Policy ("HS ABC Policy") are available at www.hsholdings.co.uk and the Customer shall, at all times, conduct, and procure that its officers, directors, employees and/or representatives conduct, business ethically and in accordance with the relevant provisions of the HS Code of Conduct and the HS ABC Policy, as each may be updated from time to time. This clause shall apply whether or not the Customer is acting pursuant to the Contract or its relationship with the Company.

13.3 The Customer agrees that it must be able to demonstrate its compliance with the requirements referred to in this Section 13 at the request of and to the satisfaction of the Company. If the Customer fails to comply with this Section 13, the Company shall be entitled, in its sole discretion, to terminate the Contract and any other agreements between the Customer and the Company without penalty to the Company, but with obligations for the Customer to remedy any damages suffered by the Company as a result of such termination or as a result of the breach of contract.

14. MISCELLANEOUS

14.1 In the case of any Order for the export of Goods, the Schedule to the Uniform Law on International Sales Act 1967 shall not in any circumstances apply to the Contract and neither shall the limits imposed by the Uniform Law on International Sales Act 1977 on the extent to which liability can be excluded or limited. The United Nations Convention on Contracts for the International Sale of Goods shall have no application to the purchase of Goods, these Terms or actions hereunder or contemplated hereby.

14.2 Any failure to exercise or any delay by the Company in exercising a right or remedy provided by this Contract or at law or in equity will not constitute a waiver of the right or remedy or a waiver of any other rights or remedies. A waiver of a breach of any of the terms of the Contract or of a default under these Terms will not constitute a waiver of any other breach or default and will not affect the other terms of the Contract.

14.3 The Customer shall not, without the written consent of the Company, assign (including by operation of law), transfer, mortgage, or grant a lien on any of its rights under any Contract or purport to do the same.

14.4 The Company shall be entitled to appoint one or more sub-contractors to carry out all or any of its obligations under any Contract and shall for the avoidance of doubt be entitled to assign any interest or rights that it has in relation to any Contract.

14.5 If any provision of these Terms shall be held invalid or unenforceable in whole or in part then the unaffected provisions shall remain in full force and effect. Headings appear for convenience only and shall not affect the construction of these Terms.

14.6 The Contract and any non-contractual obligations arising out of or in connection with it shall be governed and interpreted exclusively according to the laws of the State of Massachusetts. The parties hereby agree to submit to the exclusive jurisdiction of the courts in Pennsylvania provided that the Company may at its option file suit in the state in which the Customer is organized or located, including action to obtain any remedy (including injunctive relief).

14.7 There are no third party beneficiaries to these Terms.

15. SERVICES WARRANTY AND LIABILITY

Provided that the Company has been notified, within a reasonable time, not to exceed sixty (60) days, from completion of the contracted Service to the customer, of any verified errors or deficiencies in the Service, the Company will proceed to correct the error(s) or deficiency (ies) for the Customer at no cost. This rework will constitute the Company’s sole liability for errors, deficiencies, defects or other non-conformance. However, no other direct or indirect expenses, material costs to the customer, as a result of any and all corrections made, will be accepted by the Company.

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