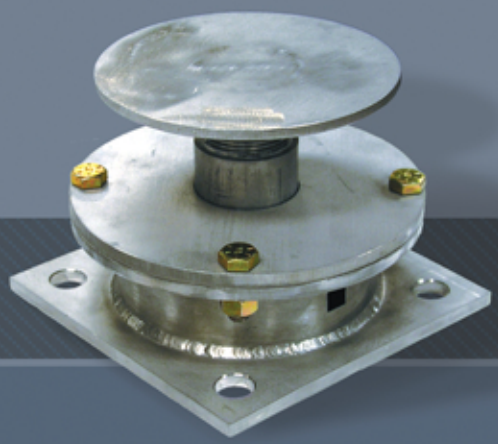
Disc Spring Technology, LLC

Our Mission is to provide solutions to save plant space by satisfying large loads and small movements for the global process industries.

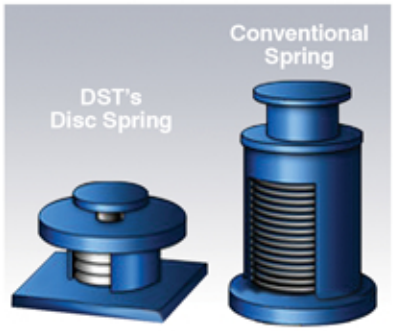
Compact Spring Support System

Large Load / Small Movements



www.dstechnologyllc.com

Making the World a Better Place



Compared to conventional springs, DST springs are suited for equal loads while consuming significantly less space.

The Disc Spring Support System: Large Load, Small Movements

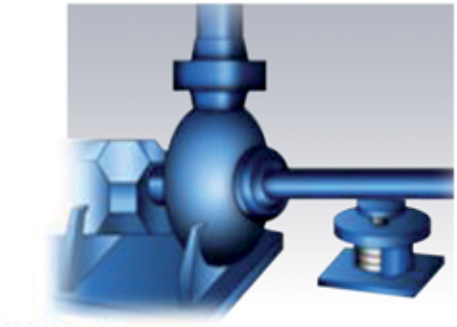
The most precious commodity in Plant or Pipe System design used in any commercial or industrial facility is the optimum utilization of valuable space. However, due to engineering design and lay out changes, available space can become limited and restrictive for an effective pipe support design. In addition, facility piping and adjoining equipment are subjected to operating loads which can reduce the lifetime of process equipment due to undesirable internal and external forces.

The DST Compact Spring Support System

Disc Spring Technology, LLC has invented a new type of spring support system which allows for the desired pipe and equipment movement while significantly optimizing space. The DST Compact Spring Support System also provides an entirely corrosive free support which requires little or no maintenance during the life span of any plant or process facility.

The new innovative DST Compact Spring Support System will reduce space requirements, while satisfying small movements thus resulting in overall improved system flexibilities and load reduction on equipment. These benefits easily justify the use of the DST Disc Spring Support System.

The DST Support System Advantage

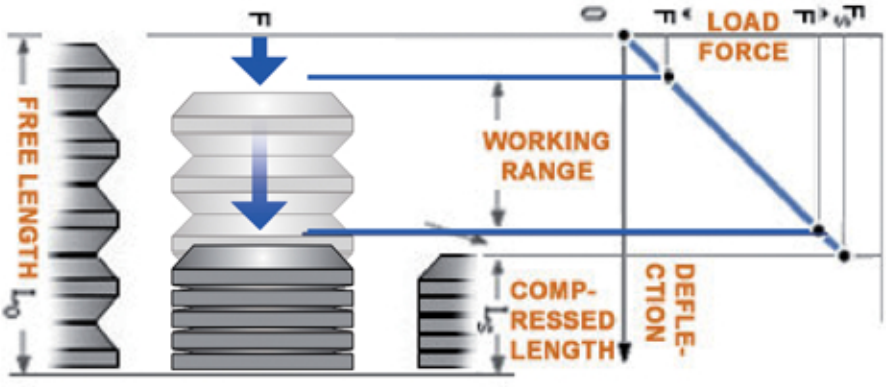


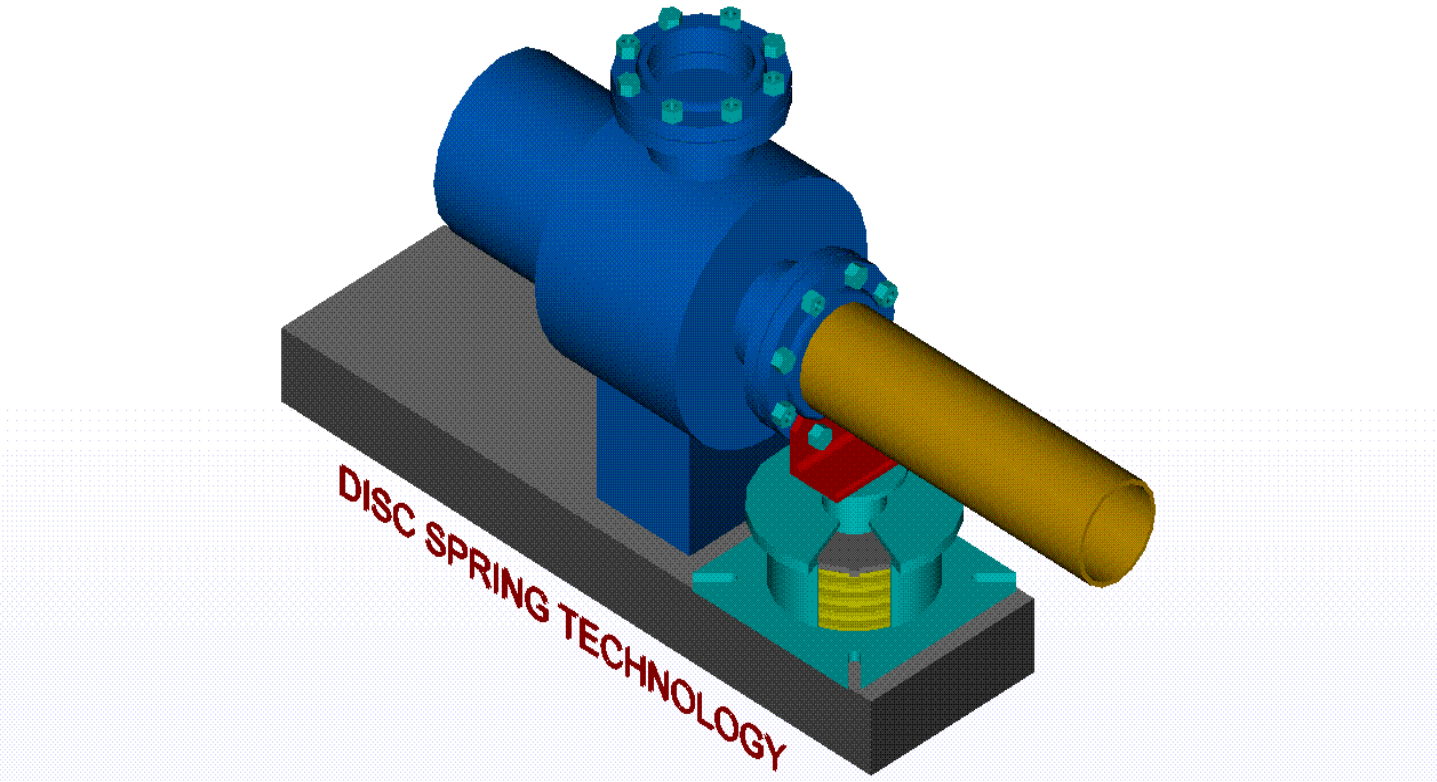
Dst spring support can help maintain pump seal, reduce nozzel loads on equipment, & satisfy small movements.

Variable Effort Spring Rate Supporting a Wide Range of Loads

Another significant advantage of the DST support system is that the disc spring support is designed to provide a variable effort spring rate supporting a wide range of loads. DST engineers have found a way to custom design a disc spring support that simulates the same load and deflection characteristics of conventional helical coil spring supports for small movements.

The disc spring offers an advantage over the helical coil in satisfying small movements in a limited space. DST will be able to easily customize the support components in order to satisfy your space, load and associated movement requirements.





Serving

• Petrochemicals	• Mining & Metals
• Power	• Pharmaceuticals
• Semiconductor	• Pulp & Paper Mills
• Waste Treatment	• Sugar Mills
• Oil & Gas Transmission Lines	• Nuclear
• Bulk Gas Plants	• Desalinization Plants

NOTES:

Table of Contents

DISC SPRING TECHNOLOGY, LLC.

WHY USE DST SPRING SUPPORTS?

ABOUT DST

DST has developed an innovative spring support system satisfying small movements in limited space. These features are not offered by conventional helical coil spring supports. Through careful manipulation of the conical spring washer's dimensional and mechanical characteristics, DST has developed a series of spring supports, which matches and exceeds the performance of helical coil spring supports in instances that require limited space.

DST supports are based on the use of custom engineered conical (Belleville) springs, which allows DST to offer a full range of patented spring supports that suite the need for large loads and small movements. This catalog provides conical spring support sizes that will support loads from 50 to 50,000 lbs and movements from 0 to 3/4". The working range for DST springs is between 45% to 85% maximum compression. However, for safety and durability, DST springs are designed for 100% compression without being overstressed. All the items shown in this catalog are 'Range Machines'. They are made to be applied to a range of loads and movements. Custom made applications for a specific load and/or movements are offered upon request.

DST Spring Supports have several added features that set them apart from helical coil spring supports. DST offers springs in carbon and stainless steel alloys. DST offers the entire spring support (spring and housing) made in corrosion resistant stainless steel or other suitable alloys making it ideal to combat aggressive corrosive environments like seawater, marine air, or corrosive chemicals. All DST supports are provided using guided load columns. DST recommends installation from ambient temperatures up to 225 degrees F.

BACKGROUND

Why use spring supports?

Spring supports are utilized to meet allowable loads required by equipment manufacturers on load sensitive equipment and vessel nozzles. Thermal pipe movements can range from thousands of an inch to several inches during a thermal cycle. Thermal movements of thousands of an inch can produce loads on equipment nozzles beyond their manufacturer's specified allowable loads. For these reasons, the need to satisfy thermal and gravitational loads on sensitive equipment in a piping system is just as important for movements measured in thousands of an inch as it is for large movements of several inches.

In contrast, static supports are the principle means for supporting pipe systems but do not transfer loads off equipment nozzles. Rod hangers, base elbow or base line supports can cause more damage to equipment if they are not properly installed. An object lifted off its support is independent of the displacement. Particular to rotating equipment, the result of using a static support is often evident in seal damage, casing distortion and coupling misalignment. In conjunction, static supports can lead to over loading conditions and result in expensive equipment failure, down time and even injuries. The cost of down time is usually more expensive than the equipment itself. Simply stated, spring supports are insurance against down time and expensive repairs.

Currently, helical coil springs are used to allow for thermal expansion within piping systems and to meet code requirements but there are many limitations related to their use. Design engineers are reluctant to use a helical coil spring support where movements are relatively small (i.e. 1/16"). Space limitations are often controlling factors near sensitive equipment. The helical coil spring support is too large an apparatus to typically install under piping or equipment in many instances.

Corrosive, air-born materials including salt air in marine environments can attack carbon steel helical coil spring supports as well. In order to address these corrosion issues, spring manufacturers recommend the use of neoprene treated springs. It is also common practice to paint and galvanize carbon steel spring supports. However, there is no guarantee that the inner working parts are corrosion free while the spring support is assembled or remain corrosion free while it is in service.

DST PRODUCT SOLUTIONS:

Disc springs offer an advantage over helical coil springs in satisfying small displacements in limited space. By stacking conical springs and compressing them to a predetermined load, the DST Spring Support can effectively maintain support through an operating displacement in a minimum amount of space. By using conical springs, the height of a typical spring support can be reduced by 30% to 50% for displacements from 0 to 1/2". Further, due to a shorter profile, the DST Spring Support is suitable for placement under equipment such as pumps, turbines, compressor base plates, heat exchangers and equipment skids where a helical coil spring is impractical. To summarize the advantages of the DST Spring Support, the following features apply to its design:

1. The DST Spring Support satisfies small displacements of 0 to 3/4" within a minimum amount of space while effectively maintaining support of pipe or equipment within the piping system.

2. The entire DST Spring Support can be made with corrosion free materials by using stainless steel (conical) springs, which require no maintenance during the life of the support. This offers a safer and more reliable support for the lifetime of the system.

3. The DST Spring Support is designed to maintain the 25% variability requirements of MSS-SP58 ASME standard.

4. Leaks at pipe joints and equipment flange connections are reduced.

5. Excessive forces and moments on connected equipment such as pumps and turbines are minimized meeting nozzle load requirements set by the equipment's manufacturer. Excessive stresses on adjacent supporting and restraining elements are also minimized.

6. Extend equipment life by reducing costly equipment down time and maintenance.

7. Deflection and load characteristics can be changed in the spring support by stacking disc springs in series, parallel, or combinations of series and parallel. Various multiple stacking arrangements with different thicknesses can be made depending on the load requirements. This is ideal for unique situations where loads and movement requirements demand a stiffer or softer spring than is normally offered.

Compared to Helical Springs:

The geometry of the equipment nozzle on many different pieces of equipment demands the use of a compact spring support. The DST spring will support the same load through the same range of movement up to 3/4" as the helical coil spring support in a substantially smaller space.

DST supports can be made for custom applications by changing the number of disc spring washers to meet the specified movement making it as short and inexpensive as possible. Helical coil spring supports do not offer this benefit particularly at smaller displacements as their lengths can not be cut to specific movements. This cost benefit can be considerably appreciable when stainless steel is concerned in conjunction with large loads. To illustrate the difference between helical coil springs and conical washers, the minimum height of a helical coil spring could be limited to the distance of one times the pitch of the helical coil plus one coil rod diameter. This height would be greater than the height of one conical washer. The helical coil spring would have less load carrying capability than a conical washer having less height. The helical coil spring force would be weak as its spring constant is dependent on its length or the amount it can compress. One can not obtain the high load settings required for small displacements simply by making the spring shorter. Its spring constant, by definition, is pounds per inch of compression, which means the spring constant for a helical coil spring is linear. Its working range could not encompass the 25% variability requirement of the MSS-SP58 standard practice; which is a requirement set by the ASME code for pressure piping. In contrast, the conical washer's load deflection characteristics are variable throughout its load range. Because of its conical shape and design, the conical washer has a variable load deflection that is stiff in the pre-loaded position but acts similar to the helical coil spring's linear spring constant as it moves through its working range. Both deflection characteristics can be observed from the graphs presented in section 4.

The following is one example of a situation that requires the need of a compact spring support; Plate and frame heat exchangers as described in the API 662 standard emphasizes the requirement of nozzle loading being kept to a minimum. Nozzles on load sensitive equipment are often located, by design, close to grade elevation and are obscured by obstructions such as platforms and other equipment. See Illustration on page 7. Typically on a plate and frame exchanger, 4 nozzles exist – 2 inlet nozzles and 2 outlet nozzles. The 2 nozzles at the bottom are typically one pipe diameter (at the bottom of the pipe) in distance above the top of the exchanger's foundation. The allowable load for an eight-inch inlet nozzle or outlet nozzle of an API 662 standard service nozzle is 246 lbs. of force with a 911 lb-ft moment. Piping systems usually contain reducers connecting to the heat exchanger making the piping larger than the nozzle size of the exchanger. The weight alone of this piping and its fluid is almost always greater than the allowable load capacity that is specified by the code. A spring support is, obviously, required. The room for the spring support makes installation a challenge due to restricted space. A DST Spring is more suitable for direct installation in the limited space provided under the heat exchanger's lower nozzles.

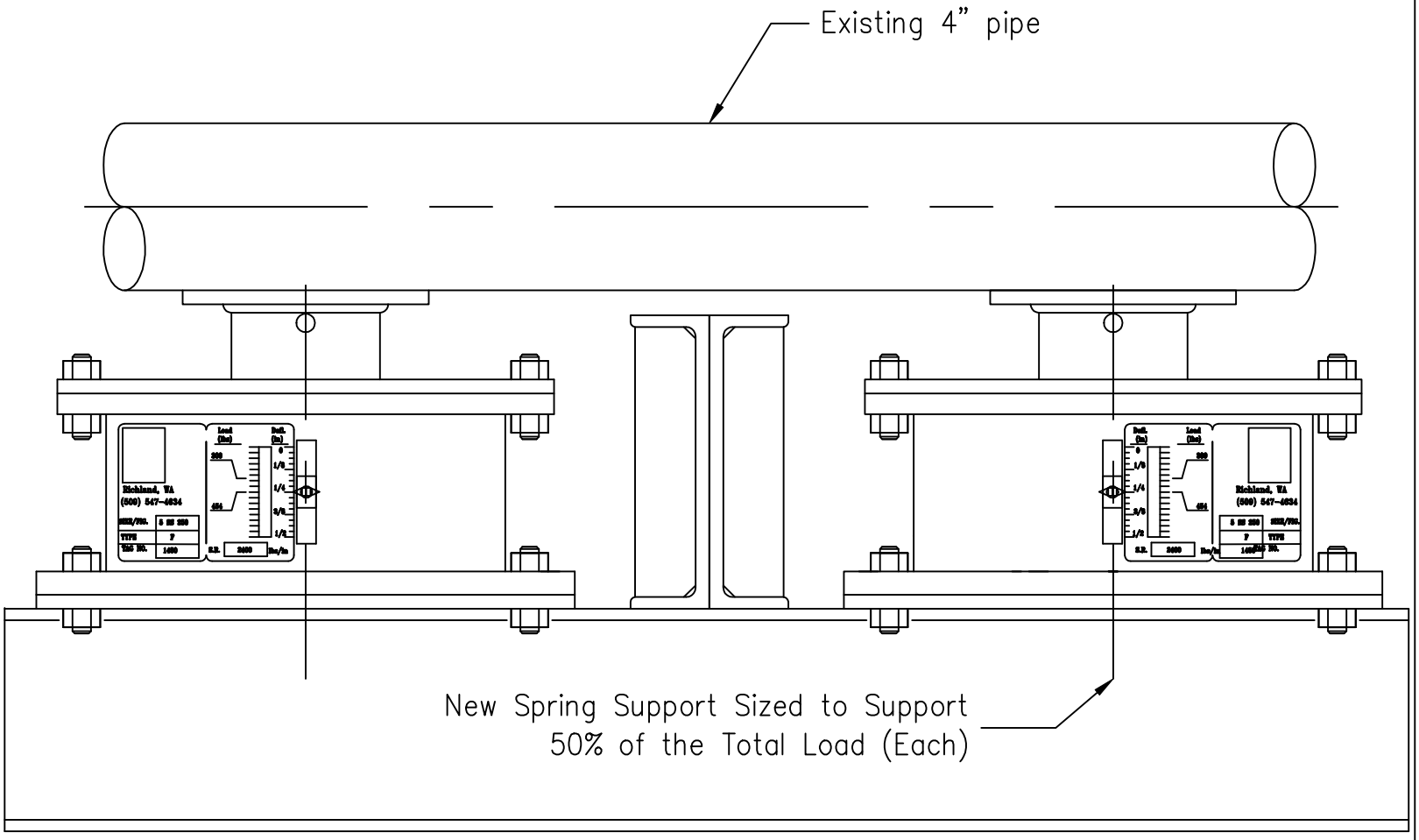
Applications

Applications of the DST Spring Support are numerous to say the least. Many applications include but are not limited to the following: reciprocating, rotating and non–rotating load sensitive equipment such as pumps, turbines, heat exchangers, blowers, compressors, pressure vessels, storage tanks, compact skid mounted units, heavy switchgears, etc. The following pages illustrate a few of the best advantages in using DST Spring Supports in industry today.

DST Parallel Support Set–Up

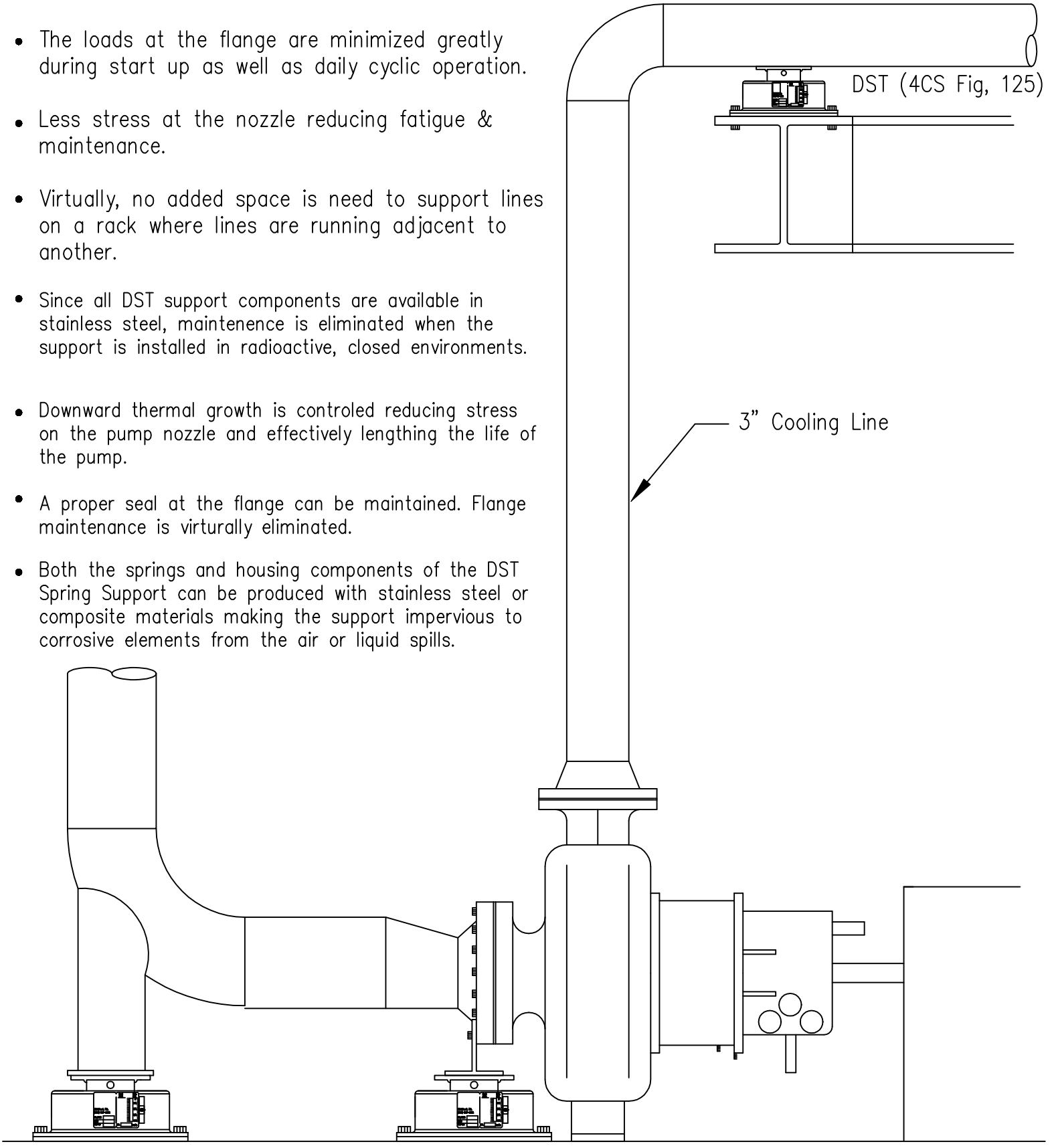
Advantages

- During lift–off situations, the DST Spring Support will stay in constant contact with the pipe throughout its thermal range.
- It's compact design allows the spring support to be retrofit into spaces that would normally be too small.

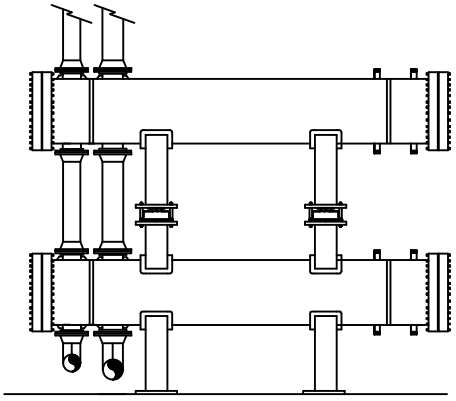


Advantages

- The loads at the flange are minimized greatly during start up as well as daily cyclic operation.
- Less stress at the nozzle reducing fatigue & maintenance.
- Virtually, no added space is need to support lines on a rack where lines are running adjacent to another.
- Since all DST support components are available in stainless steel, maintenence is eliminated when the support is installed in radioactive, closed environments.
- Downward thermal growth is controled reducing stress on the pump nozzle and effectively lengthing the life of the pump.
- A proper seal at the flange can be maintained. Flange maintenance is virturally eliminated.
- Both the springs and housing components of the DST Spring Support can be produced with stainless steel or composite materials making the support impervious to corrosive elements from the air or liquid spills.



Piggyback Heat Exchangers



Advantages

- DST Spring Supports are designed and sized to support the weight of the exchanger and eliminate thermal loads on connecting nozzles.
- Spring adjustment helps to prevent missalignment problems that arise after fabrication.
- Installation of the DST Spring Support assures correct flange bolt torque throughout the exchanger's thermal cycle.
- A proper seal at the flange can be maintained mitigating maintenance and lengthing the life of the unit.

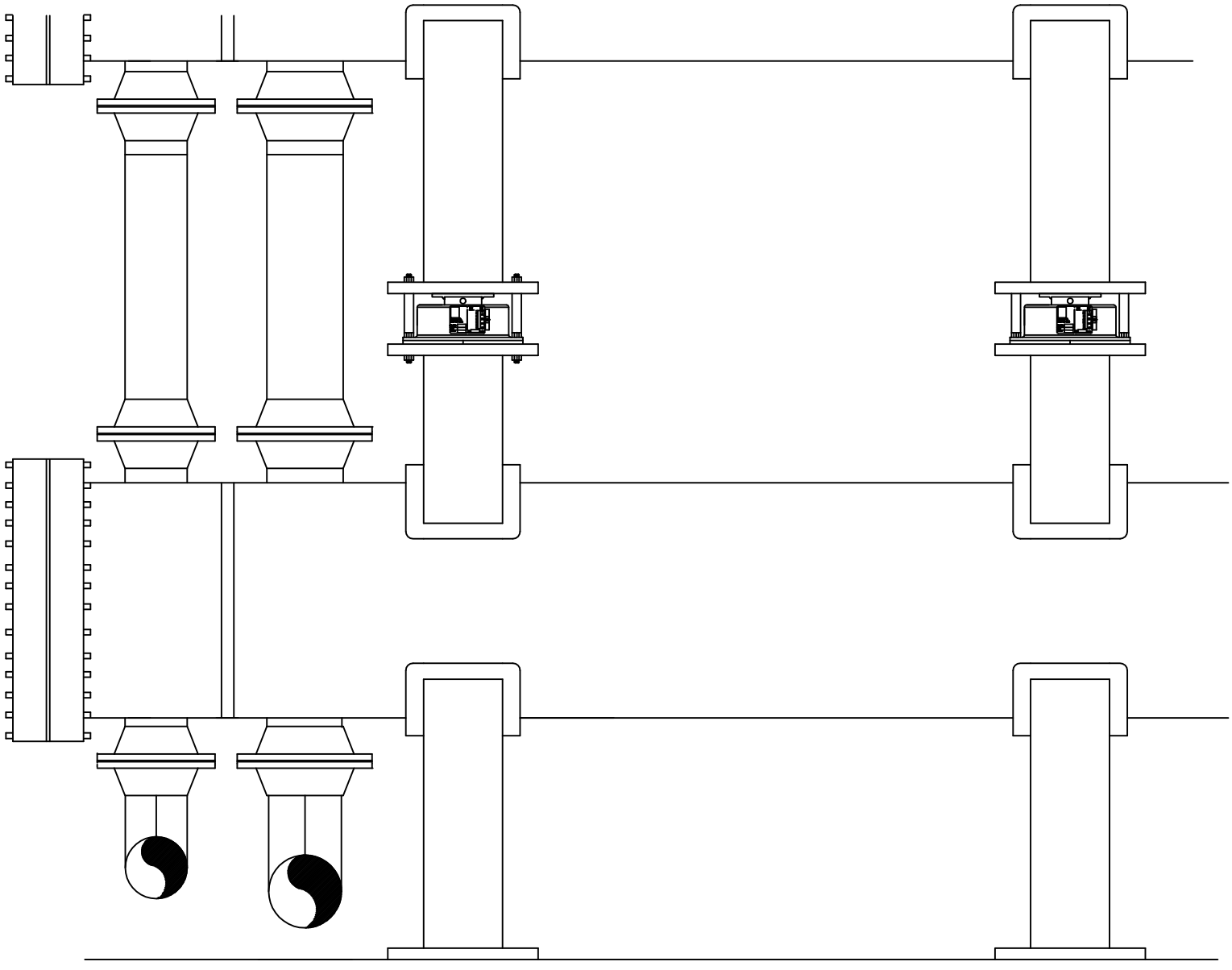
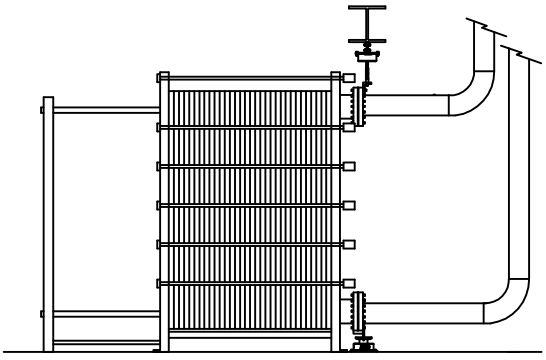
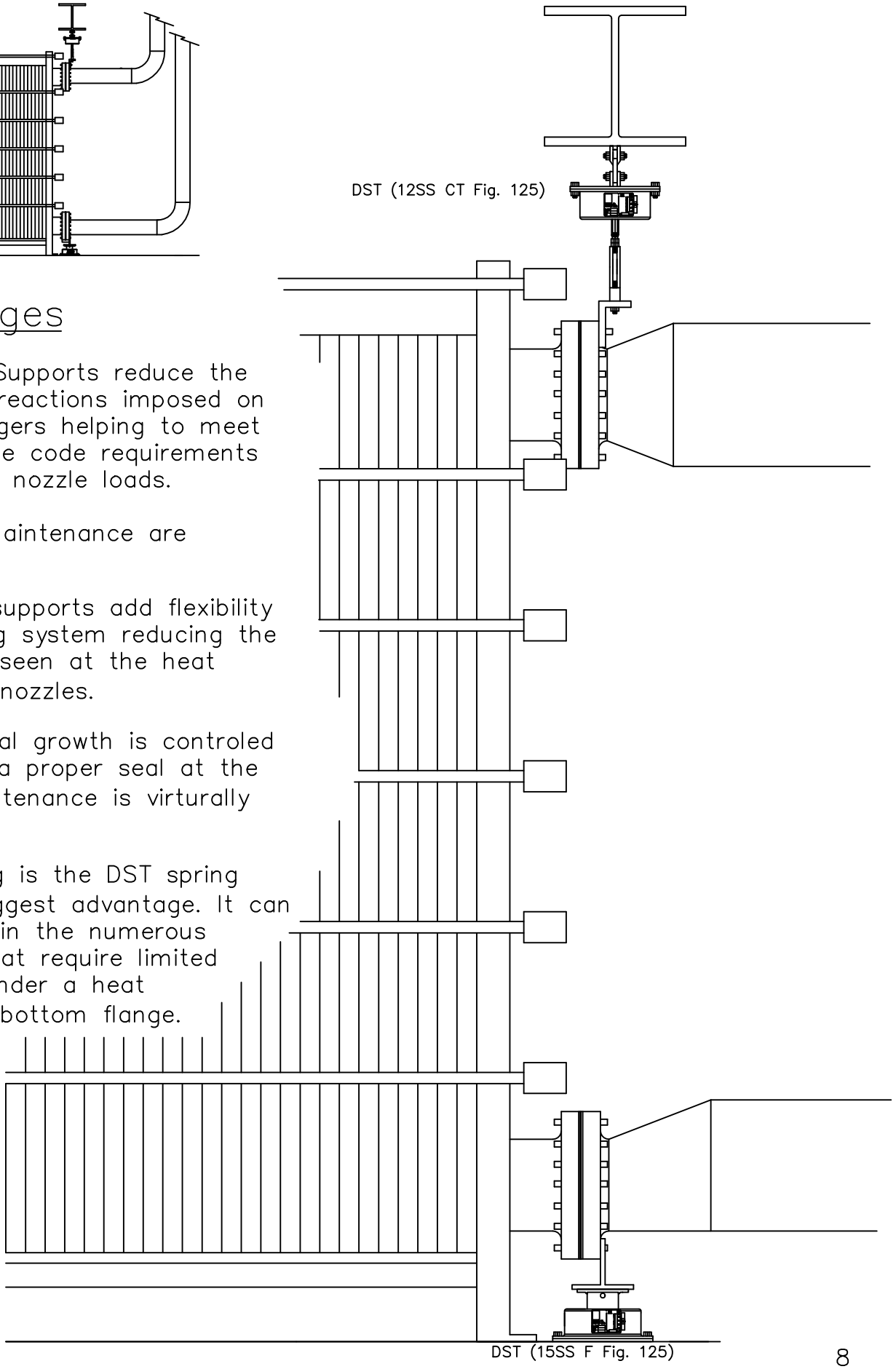


Plate & Frame Heat Exchangers



Advantages

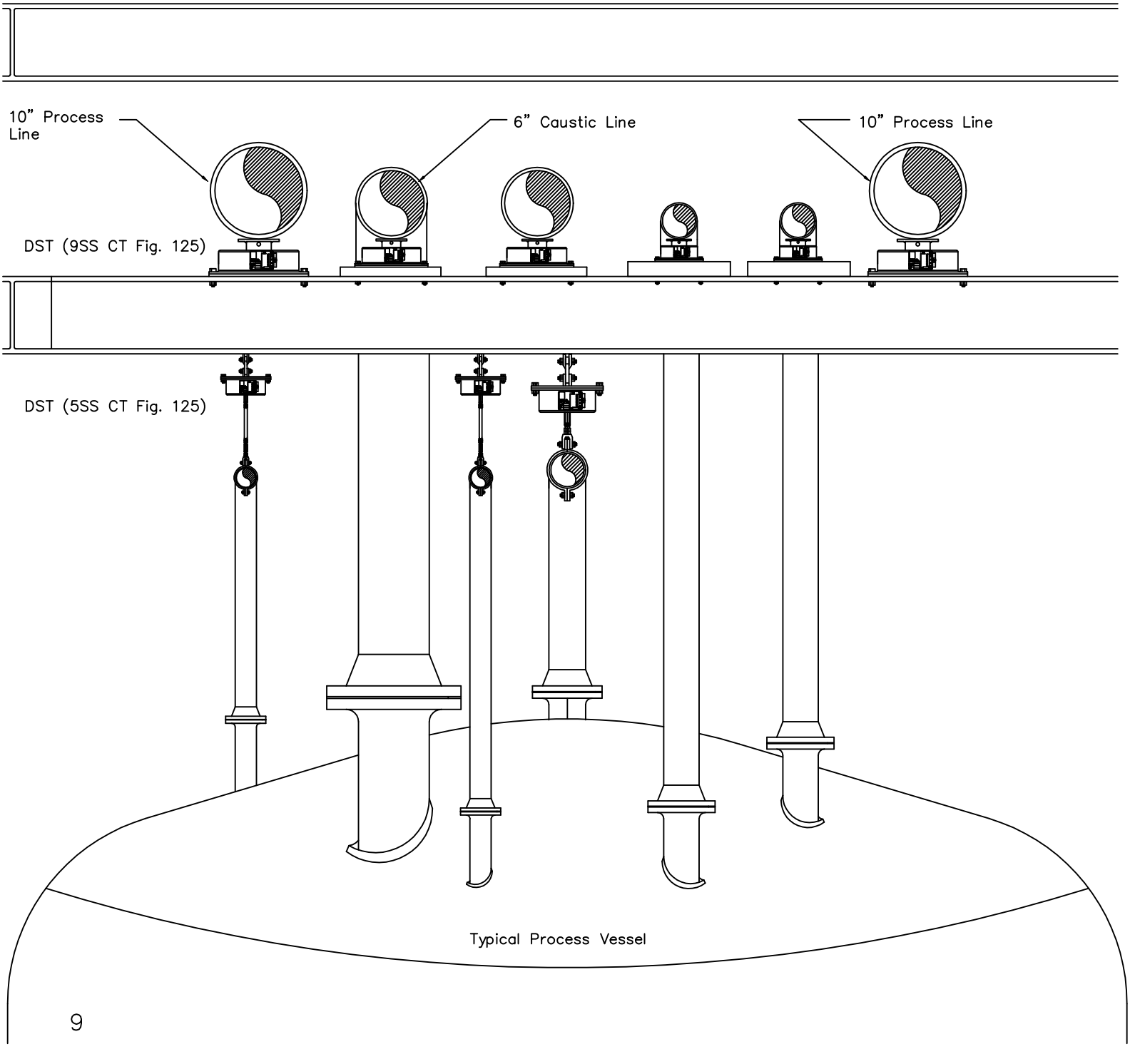
- DST Spring Supports reduce the nozzle load reactions imposed on heat exchangers helping to meet the applicable code requirements for allowable nozzle loads.
- Fatigue & maintenance are eliminated.
- DST spring supports add flexibility to the piping system reducing the overall load seen at the heat exchanger's nozzles.
  - Cyclic thermal growth is controled maintaining a proper seal at the flange. (Maintenance is virturally eliminated.)
  - Space saving is the DST spring support's biggest advantage. It can be installed in the numerous situations that require limited space like under a heat exchanger's bottom flange.



Vessel Nozzles

Advantages

- The vessel's upward thermal growth is taken up by the DST Spring Support.
- Virtually, no added space is need to support lines on the rack above the vessel.
- Allowing the adjoining pipes to move upward with the vessel's thermal growth, aleviates stress both at the nozzle and within the lines.
- Corrosive elements do not effect the performance of the DST Spring Support since all of its components are readilly available in stainless steel or composite materials.
- A proper seal at the flange can be maintained. Flange maintenance is virturally eliminated.



DST Installment & Scale

Spring Support Installation

Each DST Spring Support is delivered with its specific pre–load travel stops. The travel stops are sized to hold the pre–loaded spring support at its exact installed (cold) load setting.

Once the spring support (Fig. F or FW) is positioned and securely fastened under the pipe or piece of equipment, fine adjustments can be made by turning the load column clockwise or counterclckwise, lowering or raising the load flange.

In the case of a hanger type spring support (Fig. AT–CT), adjustment up or down is made by turning the locknut below the spring support.

Once the load flange or load column nut is snugly engaged, the full weight of the pipe or piece of equipment can be applied to the support. DST Spring Supports are designed for a hydrotest load of 2.0 times the maximum load indicated in the spring's working range.

After hydrotesting is complete, the pre–load travel stops can be pulled from the spring support allowing the springs to support the full installed load.

Fig. FW

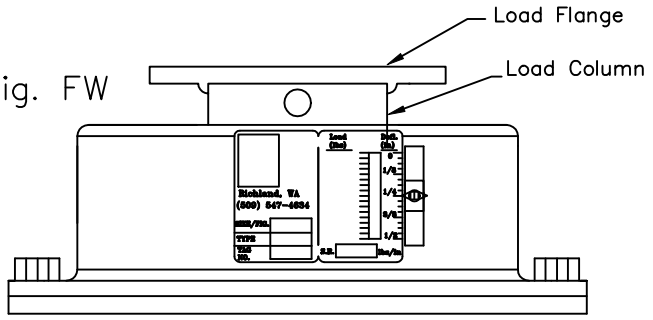
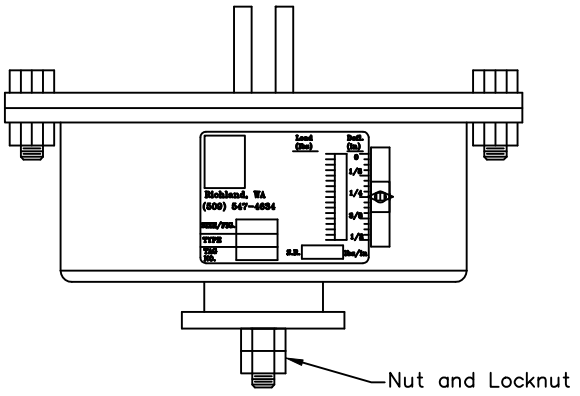


Fig. AT, BT & CT

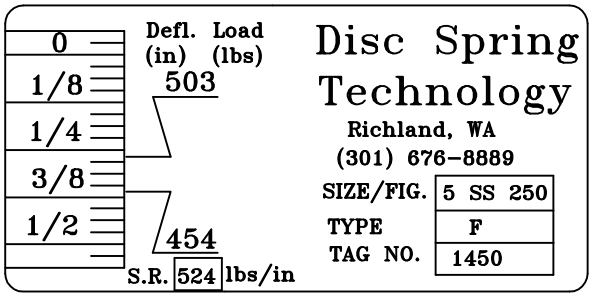


Note: Safety Lock E–Rings which prevent disengagement of the Load column from the plunger are available upon request.

Scales

Each scale is delivered with the proper Figure (i.e. FW, AT, CT), Size, Spring Rate (S.R.), total machine movement, tag no. and indicated load range.

The load range, indicating the postion of the hot and cold load settings should be clearly marked on the face of each scale. The total working range deflection (movement) is shown on the right of the scale.



1/8" Movement Scale

SPRING SUPPORT SELECTION TABLES

Pages 16 and 17 include the Carbon Steel Selection Table while pages 18 and 19 include the Stainless Steel Selection Table. Describing the selection tables, the size is listed across the top row of each table. The movement for each size is shown in the columns at the left of the tables. (Note that there are five separate movement (or deflection) categories; each deflection category corresponds to the specific Figure Number:

1) Figure 125 - Supports that will satisfy movements up to (1/8”),
2) Figure 250 - Supports that will satisfy movements up to (1/4”),
3) Figure 375 - Supports that will satisfy movements up to (3/8”),
4) Figure 500 - Supports that will satisfy movements up to (1/2”),
5) Figure 750 - Supports that will satisfy movements up to (3/4”).

The corresponding operating and installed loads are listed from the top left to the lower right of each table within the columns for each size. The Effective Spring Rate Formula and Variability Rate Formula are provided below the spring selection table.

Effective Spring Rate = |Operating Load (lbs.) - Installed Load (lbs.)|/ Movement (in.)
The % Variability = 100|(Operating Load - Installed Load)|/Operating Load

HOW TO SELECT A HANGER USING THE TABLE

The movement (displacement magnitude and direction up or down) from installed load (cold load) to operating load (hot load) must be known. The operating load (the actual weight of the piping) which the spring is to support must also be known. The Installed load (cold load), Figure Number, and size need to be selected.
The conical washer spring rate is very close to linear, but it is not completely linear as indicated in the included graphs. The factors A, B, C, D, E, & F are provided for each spring’s size. The factors A, B, & C are independent of the Figure Number. These are used to calculate loads for each Figure Number. The factors D, E, & F are based on Figure Number 250. These factors are used for calculating travel. The calculated travel must be divided by the Figure Number’s Travel Factor. The Travel Factor for Figure Number 125 is 0.5. The Travel Factors for Figure Numbers 125, 250, 375, 500 & 750 are 0.5, 1, 1.5, 2 & 3 respectively. These factors, along with the equations provided, are used to calculate Y (the installed load) for any movement X determining the support Figure Number and size. No interpolation is required. Find the operating load in the working range shown in the Spring Selection Table. If the operating load is outside the working range of the hanger selected, choose the operating load in the next larger size.

To determine the installed load, read the spring scale, up or down, for the expected movement. The spring selection table is read in the opposite direction from the expected movement. The load arrived is the installed load. Selection is complete when the operating load and installed load are both within the working range of the selected size. The Spring Selection Table shows only loads within the working range. If a hanger is not available for the requirements within that working range, select a Figure Number with a wider range. The check for MSS SP-58 25% variability is then required. See complete numeric examples below. The "Takeout", indicated in the Spring Support Figures & Types section drawings as Length "X" Min. and Length "X" Max., starts at the beginning of the spring's working range for 0" deflection. The amount of adjustment to bring the spring support to its installed "Takeout" will be demonstrated in the following examples. **To simplify this process, an automatic selection program is available for selecting both stainless or carbon steel supports at www.dstechnologyllc.com.**

Example 1: Carbon Steel Material

Given: Operating load = 276 lbs. load @ movement = 0.188" up installed to operating
Find the operating load using the selection table or graphs.

1. The first figure number that can envelope a movement = 0.188" is a Figure Number 250 with a travel factor of 2.0.
2. The operating load of 276 Lbs. is first available in size 3CS.
3. The factors for that spring size 3CS are given as: A = -260.024, B = 744.68, C = 23.68, D = 1.70×10^{-6}, E = 9.24×10^{-4}, F = 7.95×10^{-3}.
4. Spring size 3CS is initially compressed to (X_0) = 0.2788" to begin its working range at (Y_0) = 211 lbs. initial load.
5. The operating load of Y = 276 lbs. load is found to be compressed to (X_P) = 0.393" (using $X = (DY^2 + EY + F)$ with the factors D, E, & F for that Spring Size 3CS).
6. The movement from the installed load to the operating load is 0.188" up.
7. The total movement (X_I) = 0.393" + (0.188" divided by a travel factor of 2.0) = 0.487".
8. The installed load for the total movement (X_I) = 0.487" is found to be (Y_I) = 324.4 lbs. (using $Y = (AX^2 + BX + C)$ with the factors A, B, & C for that Spring Size 3CS.)
9. The Figure Number 250 can envelope that working range of 324.42 lbs. installed load to 276 lbs. operating load @ movement = 0.188" up installed to operating.
10. The % Variability = 100 x | (operating load - installed load) | / operating load. The % Variability = 100 x | (276 Lbs. -324.4 lbs.) | / 276 lbs. = 17.54% < 25% Selection complete (MSS SP-58 satisfied).
11. Effective Spring Rate = | (operating load - installed load) | / |movement Effective Spring Rate = | (276 lbs.-324.4 lbs.) | / |.188 in.| = 324.42 lbs./in.
12. The adjustment for the installed "Takeout" is found to be = 0.766" using $(DY_I^2 + EY_I + F) + (X_0)$ with the factors D, E, F, & X_0 for that spring size.

Example 2: Carbon Steel Material

Given: Operating load = 400 lbs. load @ movement = 0.22" up installed to operating
Find the operating load using the selection table or graphs.

1. The first figure number that can envelope a movement =0.22" is a Figure Number 250 with a travel factor of 2.0.
2. The operating load of 400 lbs. is first available in size 4CS.
3. The factors for that Spring Size 4CS are given as: A -334.939, B = 964.66, C = 30.78, D = 1.01×10^{-6}, E = 7.14×10^{-4}, F = 7.99×10^{-3}.
4. Spring Size 4CS is initially compressed to (X_0) =0.2803" to begin its working range at (Y_0) = 275 lbs. initial load.
5. The operating load of Y = 400 Lbs. Load is found to be compressed to (X_P) = 0.4549" (using $X = (DY^2 + EY + F)$ with the factors D, E, & F for that Spring Size 4CS).
6. The movement from the installed load to the operating load is 0.22" up.
7. The total movement (X_I) = 0.4549" + (0.22" divided by a travel factor of 2.0) = 0.5649".
8. The installed load for the total movement (X_I) = .5649" is found to be (Y_I) = 468.85 lbs. (using $Y = (AX^2 + BX + C)$ with the factors A, B, & C for that Spring Size 4CS).
9. The Figure Number 250 can NOT envelope that working range of 468.85 lbs. installed load to 400 lbs. operating load @ movement = 0.22" up installed to operating .
10. Go to a next larger size spring as the operating load of 400 Lbs. is also available in size 5CS. As already stated, Figure Number 250 with a travel factor of 2.0 can envelope the movement.
11. The factors for that Spring Size 5CS are given as: A -449.197, B = 1273.389, C = 39.99, D = 5.88×10^{-7}, E = 5.41×10^{-4}, F = 7.86×10^{-3}.
12. Spring Size 5CS is initially compressed to (X_0) = 0.2759" to begin its working range at (Y_0) = 357 lbs. initial load.
13. The operating load of Y = 400 lbs. load is found to be compressed to (X_P) = 0.3183" (using $X = (DY^2 + EY + F)$ with the factors D, E, & F for that Spring Size 4CS).
14. The movement from the installed load to the operating load is 0.22" up.
15. The total movement (X_I) = 0.3183" + (0.22" divided by a travel factor of 2.0) = 0.4283".
16. The installed load for the total movement (X_I) = 0. 4283" is found to be (Y_I) = 503.0 lbs. (using $Y = (AX^2 + BX + C)$ with the factors A, B, & C for that Spring Size 4CS).

17. The Figure Number 250 can envelope that working range of 503.0 lbs. installed load to 400 lbs. operating load @ movement = 0.22" up installed to operating.
18. The % Variability = 100 x | (operating load - installed load) | / operating load The % Variability = 100 x | (400 lbs. -503.0 lbs.) | / 400 lbs. = 25.75% > 25% Selection incomplete (MSS SP-58 not satisfied).
19. The next figure number that can envelope a movement = 0.22" is a Figure Number 375 with a travel factor of 3.0.
20. The operating load of 400 lbs. is first available in size 4CS.
21. The factors for that Spring Size 4CS are given as: A -334.939, B = 964.66, C = 30.78, $D = 1.01 \times 10^{-6}$, $E = 7.14 \times 10^{-4}$, $F = 7.99 \times 10^{-3}$.
22. Spring Size 4CS is initially compressed to (X_0) =0.2803" to begin its working range at (Y_0) = 275 Lbs. initial load.
23. The operating load of Y = 400 lbs. load is found to be compressed to (X_P) = 0.4549" (using $X = (DY^2 + EY + F)$ with the factors D, E, & F for that Spring Size 4CS).
24. The movement from the installed load to the operating load is 0.22" up.
25. The total movement (X_I) = 0.4549" + (0.22" divided by a travel factor of 3.0) = 0.5283".
26. The installed load for the total movement (X_I) = 0.5283" is found to be (Y_I) = 446.90 lbs. (using $Y = (AX^2 + BX + C)$ with the factors A, B, & C for that Spring Size 4CS).
27. The Figure Number 375 that can envelope that working range of 446.90lbs., installed load to 400 lbs., operating load @ movement = 0.22" up installed to operating.
28. The % Variability = 100 x | (operating load - installed load) | / operating load The % Variability = 100 x | (400 lbs. -446.90 lbs.) | / 400 lbs. = 11.73% < 25% Selection complete (MSS SP-58 satisfied).
29. Effective Spring Rate = | (operating load - installed load) | / |movement| Effective Spring Rate = | (400 lbs.-446.90 lbs.) | / |0.22 in.| = 213.2 lbs./in.
30. The adjustment for the installed "Takeout" is found to be = 0.809" using $(DY_I^2+EY_I+F)+(X_0)$ with the factors D, E, F, & X_0 for that spring size.

Example 3a: Carbon Steel Material

Given: Operating load = 9763 lbs. load @ movement = -0.1339" down installed to operating
Find the operating load using the selection table or graphs.

1. The first figure number that can envelope a movement = -0.1339" is a Figure Number 250 with a travel factor of 2.0.
2. The operating load of 9763 Lbs. is first available in size 16CS.
3. The factors for that Spring Size 16CS are given as:
4. $A = -6648.879$, $B = 22592.177$, $C = 850.51$, $D = 1.56 \times 10^{-9}$, $E = 3.00 \times 10^{-5}$, $F = -9.43 \times 10^{-3}$.
5. Spring Size 16CS is initially compressed to $(X_0) = 0.3308$" to begin its working range at $(Y_0) = 7596$ lbs. initial load.
6. The operating load of Y = 9763 lbs. load is found to be compressed to $(X_P) = 0.4508$" (using $X = (DY^2 + EY + F)$ with the factors D, E, & F for that Spring Size 16CS).
7. The movement from the installed load to the operating load is -0.1339" down.
8. The total movement $(X_I) = 0.4508$" + (-0.1339" divided by a travel factor of 2.0.) = 0.3839".
9. The installed load for the total movement $(X_I) = 0.3839$" is found to be $(Y_I) = 8543.58$ lbs. (using $Y = (AX^2 + BX + C)$ with the factors A, B, & C for that Spring Size 16CS).
10. The Figure Number 250 can envelope that working range of 8543.58 lbs. installed load to 9763 lbs. operating load @ movement = -0.1339" down installed to operating.
11. The % Variability = 100 x | (operating load - installed load) | / operating load. The % Variability = 100 x | (9763 lbs. -8543.58 lbs.) | / 9763 lbs. = 12.49% < 25% Selection complete (MSS SP-58 satisfied).
12. Effective Spring Rate = | (operating load - installed load) | / |movement|
    Effective Spring Rate = | (9763 lbs.-8543.58 lbs.) | / |-0.1339 in.| = 9106.95 lbs./in.
13. The adjustment for the installed "Takeout" is found to be = 0.710" using $(DY_I^2 + EY_I + F) + (X_0)$ with the factors D, E, F, & X_0 for that spring size.

Example 3b: Carbon Steel Material

The purpose of this example is to show how a special purpose support can be made out of a range support to save space. The requirements of this example are the same as Example 3a.

1. As shown in Example 3a, the first figure number that can envelope a movement = -0.1339" is a Figure Number 250 with a travel factor of 2.0. This is the starting point for a special purpose support. The special purpose support will be between a Figure Number 250 and a Figure Number 125. The Figure Number 250, size 16CS has 6 disc springs and the Figure Number 125, size 16CS has 3 disc springs. This is an example with 4 springs. The Figure Number 250 travel factor of 2.0 is adjusted by that ratio of 4 divided by 6 (=0.667). The Travel Factor of 1.334 is now applied to Example 3a
2. Same as Example 3a.
3. Same as Example 3a
4. Same as Example 3a
5. Same as Example 3a
6. Same as Example 3a
7. Same as Example 3a
8. The total movement (X_I) = 0.4508" + (-0.1339" divided by a travel factor of 1.334.) = 0.3505"
9. The installed load for the total movement (X_I) = 0.3505" is found to be (Y_I) = 7951.64 lbs. (using $Y = (AX^2 + BX + C)$ with the factors A, B, & C for that Spring Size 16CS).
10. The Figure Number 250 with a travel factor of 1.334 can envelope that working range of 7951.64 lbs. installed load to 9763 lbs. operating load @ movement = -0.1339" down installed to operating.
11. The % Variability = 100 x | (operating load - installed load) | / operating load
    The % Variability = 100 x | (9763 lbs. -7951.64lbs.) | / 9763 lbs. = 18.55% < 25%
    Selection complete (MSS SP-58 satisfied).
12. Effective Spring Rate = | (operating load - installed load) | / |movement|
    Effective Spring Rate = | (9763 lbs.-7951.64 lbs.) | / |-0.1339 in.| = 13527.69 lbs./in.
13. Note that this spring support is 1.1875" shorter than the support with 6 springs as described in Example 3a above for Figure Number 250 size 16CS. (Any movement can be accommodated upon special request.)

DISC SPRING TECHNOLOGY, LLC.

Working Range Deflection (inch)					CARBON STEEL SPRING SIZES / LOADS (lbs)																				
FIG 750 Travel Factor=6	FIG 500 Travel Factor=4	FIG 375 Travel Factor=3	FIG 250 Travel Factor=2	FIG 125 Travel Factor=1	1CS	2CS	3CS	4CS	5CS	6CS	7CS	8CS	9CS	10CS	11CS	12CS	13CS	14CS	15CS	16CS	17CS	18CS	19CS	20CS	21CS	22CS	Preload
0	0	0	0	0	100	129	161	211	275	357	474	632	830	1,094	1,432	1,882	2,477	3,260	4,332	5,762	7,596	10,099	13,214	17,091	22,636	30,990	RANGE
3/64	1/32	3/128	1/64	1/128	103	132	164	216	281	365	484	645	849	1,118	1,463	1,919	2,523	3,330	4,408	5,891	7,737	10,266	13,505	17,425	23,023	31,437	
3/32	1/16	3/64	1/32	1/64	105	135	168	220	287	373	494	659	868	1,143	1,493	1,957	2,568	3,400	4,484	6,018	7,878	10,432	13,793	17,758	23,409	31,881	
					107	138	171	225	293	381	504	672	886	1,168	1,523	1,993	2,614	3,470	4,560	6,145	8,018	10,597	14,080	18,089	23,793	32,324	
3/16	1/8	3/32	1/16	1/32	109	141	174	230	299	389	514	686	905	1,192	1,553	2,030	2,659	3,539	4,635	6,271	8,158	10,761	14,365	18,418	24,174	32,765	
					111	143	178	234	305	397	524	699	923	1,216	1,583	2,067	2,704	3,608	4,709	6,395	8,296	10,924	14,648	18,745	24,554	33,204	
9/32	3/16	9/64	3/32	3/64	114	146	181	239	311	404	534	712	941	1,240	1,612	2,103	2,749	3,676	4,784	6,519	8,434	11,086	14,929	19,069	24,932	33,641	
					116	149	185	243	316	412	544	725	959	1,264	1,641	2,139	2,793	3,744	4,858	6,642	8,571	11,248	15,208	19,392	25,307	34,076	
3/8	1/4	3/16	1/8	1/16	118	151	188	247	322	420	553	738	977	1,288	1,671	2,175	2,837	3,811	4,931	6,765	8,707	11,409	15,485	19,713	25,681	34,509	
					120	154	191	252	328	427	563	751	995	1,311	1,699	2,211	2,881	3,878	5,004	6,886	8,842	11,569	15,760	20,031	26,052	34,940	
15/32	5/16	15/64	5/32	5/64	122	157	195	256	334	435	572	764	1,013	1,335	1,728	2,246	2,925	3,945	5,077	7,006	8,976	11,728	16,033	20,348	26,422	35,369	
					124	159	198	261	339	442	582	776	1,030	1,358	1,757	2,281	2,968	4,011	5,149	7,126	9,110	11,886	16,304	20,663	26,789	35,796	
9/16	3/8	9/32	3/16	3/32	126	162	201	265	345	449	591	789	1,048	1,381	1,785	2,316	3,011	4,076	5,221	7,245	9,243	12,043	16,573	20,975	27,154	36,221	
					128	165	204	269	350	457	601	802	1,065	1,404	1,813	2,351	3,054	4,141	5,292	7,363	9,375	12,200	16,840	21,286	27,518	36,644	
21/32	7/16	21/64	7/32	7/64	130	167	208	274	356	464	610	814	1,082	1,426	1,841	2,385	3,097	4,205	5,363	7,480	9,506	12,355	17,106	21,595	27,879	37,065	
					132	170	211	278	361	471	619	826	1,099	1,449	1,869	2,419	3,139	4,269	5,434	7,596	9,636	12,510	17,369	21,901	28,238	37,484	
3/4	1/2	3/8	1/4	1/8	134	172	214	282	367	478	628	839	1,116	1,471	1,896	2,453	3,181	4,333	5,504	7,711	9,766	12,664	17,630	22,206	28,595	37,901	
					136	175	217	286	372	485	637	851	1,132	1,493	1,923	2,487	3,223	4,396	5,574	7,825	9,895	12,817	17,889	22,509	28,951	38,316	
27/32	9/16	27/64	9/32	9/64	138	177	220	290	378	492	646	863	1,149	1,515	1,950	2,521	3,264	4,459	5,643	7,939	10,023	12,970	18,147	22,809	29,304	38,730	
					140	180	223	294	383	499	655	875	1,166	1,537	1,977	2,554	3,306	4,521	5,712	8,051	10,150	13,121	18,402	23,108	29,655	39,141	
15/16	5/8	15/32	5/16	5/32	142	182	226	298	388	506	664	887	1,182	1,558	2,004	2,587	3,347	4,583	5,780	8,163	10,276	13,272	18,655	23,404	30,004	39,550	
					144	185	229	302	393	513	673	898	1,198	1,580	2,031	2,620	3,387	4,644	5,848	8,274	10,401	13,421	18,907	23,699	30,351	39,957	
1 1/32	11/16	33/64	11/32	11/64	146	187	232	306	399	520	682	910	1,214	1,601	2,057	2,653	3,428	4,705	5,916	8,384	10,526	13,570	19,156	23,991	30,696	40,363	
					148	189	235	310	404	527	690	922	1,230	1,622	2,083	2,685	3,468	4,765	5,983	8,493	10,650	13,718	19,404	24,282	31,039	40,766	
1 1/8	3/4	9/16	3/8	3/16	150	192	238	314	409	534	699	933	1,246	1,643	2,109	2,717	3,508	4,825	6,050	8,601	10,773	13,866	19,649	24,570	31,380	41,167	
					152	194	241	318	414	540	707	945	1,262	1,664	2,135	2,749	3,548	4,884	6,117	8,708	10,895	14,012	19,893	24,857	31,719	41,567	
1 7/32	13/16	39/64	13/32	13/64	153	197	244	322	419	547	716	956	1,277	1,684	2,160	2,781	3,587	4,943	6,183	8,814	11,017	14,158	20,135	25,141	32,055	41,964	
					155	199	247	326	424	553	724	967	1,292	1,705	2,185	2,812	3,627	5,001	6,248	8,920	11,137	14,302	20,374	25,424	32,390	42,360	
1 5/16	7/8	21/32	7/16	7/32	157	201	250	330	429	560	733	979	1,308	1,725	2,211	2,843	3,665	5,059	6,313	9,025	11,257	14,446	20,612	25,704	32,723	42,753	
					159	203	253	334	434	566	741	990	1,323	1,745	2,235	2,874	3,704	5,117	6,378	9,128	11,376	14,589	20,848	25,983	33,054	43,145	
1 13/32	15/16	45/64	15/32	15/64	161	206	256	337	439	573	749	1,001	1,338	1,765	2,260	2,905	3,742	5,174	6,443	9,231	11,494	14,731	21,082	26,259	33,382	43,534	
					162	208	258	341	443	579	757	1,011	1,353	1,784	2,285	2,936	3,781	5,230	6,507	9,333	11,612	14,873	21,313	26,534	33,709	43,922	
1 1/2	1	3/4	1/2	1/4	164	210	261	345	448	585	765	1,022	1,368	1,804	2,309	2,966	3,818	5,286	6,570	9,434	11,728	15,013	21,543	26,806	34,034	44,307	
					---	---	---	---	---	---	773	1,033	---	---	2,333	2,996	3,856	---	6,633	9,535	11,844	15,153	21,771	27,076	34,356	44,691	
1 19/32	1 1/16	51/64	17/32	17/64	---	---	---	---	---	---	---	---	---	---	---	3,026	3,893	---	6,696	9,634	11,959	15,292	21,997	27,345	34,677	45,072	
					---	---	---	---	---	---	---	---	---	---	---	3,056	3,931	---	6,758	9,733	12,073	15,429	22,221	27,611	34,995	45,452	
1 11/16	1 1/8	27/32	9/16	9/32	---	---	---	---	---	---	---	---	---	---	---	---	3,967	---	6,820	9,830	12,187	15,567	22,443	27,875	35,312	45,830	
					---	---	---	---	---	---	---	---	---	---	---	---	4,004	---	6,882	9,927	12,299	15,703	22,663	---	35,626	46,205	
1 25/32	1 3/16	57/64	19/32	19/64	---	---	---	---	---	---	---	---	---	---	---	---	---	---	6,943	10,023	---	15,838	22,881	---	35,939	46,579	
					---	---	---	---	---	---	---	---	---	---	---	---	---	---	7,003	10,118	---	15,973	23,097	---	---	46,951	
1 7/8	1 1/4	15/16	5/8	5/16	---	---	---	---	---	---	---	---	---	---	---	---	---	---	7,064	10,212	---	16,107	23,311	---	---	47,321	
					---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10,305	---	16,240	23,523	---	---	47,688	
1 31/32	1 5/16	63/64	21/32	21/64	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10,397	---	16,372	23,733	---	---	48,054	
					---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	23,942	---	---	48,418	
2 1/16	1 3/8	1 1/32	11/16	11/32	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	24,148	---	---	48,780	
					---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	24,352	---	---	49,140	
2 5/32	1 7/16	1 5/64	23/32	23/64	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	24,554	---	---	49,498	
					---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	24,755	---	---	49,854	
2 1/4	1 1/2	1 1/8	3/4	3/8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	50,208	SPRING
3/64	1/32	3/128	1/64	1/128																							

GRADUATION FOR EACH ROW SHOWN ABOVE			VARIABILITY = ABS. VALUE(OPERATING LOAD - INSTALLED LOAD)/OPERATING LOAD										EFFECTIVE SPRING RATE = ABSOLUTE VALUE (OPERATING LOAD-INSTALLED LOAD) / MOVEMENT												
		A	-124.54696	-154.23856	-192.64	-260.02044	-334.93885	-449.19679	-543.12631	-736.28445	-1073.52088	-1426.9768	-1633.0357	-1871.94236	-2147.4593	-3849.4345	-3380.9698	-7197.60215	-6648.87869	-6906.0656	-16099.7558	-16494.0332	-16692.076	-16170.1053
$Y_I = (X^2*A+X*B+C)$ Load Lbs.	Constants	B	355.48567	449.21667	559.74	744.68249	964.66366	1273.38911	1613.48118	2168.24028	3001.54339	3971.32792	4861.87601	5966.90451	7331.58334	11261.2278	12166.5224	20473.7358	22592.17725	26550.1829	46369.20768	53376.14989	61795.4862	71165.9312
		C	11.24144	14.49538	17.93	23.62901	30.78202	39.99415	53.10529	70.74244	92.98001	122.45187	160.36992	210.72522	277.32016	364.9937	485.06779	645.23388	850.50833	1130.87641	1479.62231	1913.72019	2534.62653	3470.10196
INITIAL MOVEMENT		XO	0.27783	0.2835	0.28215	0.278775	0.28035	0.27594	0.28917	0.28665	0.27216	0.2709	0.2898	0.310275	0.332325	0.28476	0.35028	0.276885	0.33075	0.37422	0.28035	0.315	0.36036	0.4284
		D	7.49E-06	4.60E-06	2.960E-06	1.70E-06	1.01E-06	5.88E-07	3.49E-07	1.95E-07	1.07E-07	6.16E-08	3.84E-08	2.38E-08	1.47E-08	7.28E-09	5.07E-09	2.27E-09	1.56E-09	9.97E-10	4.36E-10	2.93E-10	1.91E-10	1.21E-10
$X_P = (Y^2*D+Y*E+F)$ Mvmt. Inches	Constants	E	1.94E-03	1.53E-03	1.234E-03	9.24E-04	7.14E-04	5.41E-04	4.27E-04	3.17E-04	2.29E-04	1.73E-04	1.42E-04	1.15E-04	9.40E-05	6.10E-05	5.70E-05	0.000034	3.00E-05	2.60E-05	0.000015	1.30E-05	1.10E-05	9.67E-06
		F	7.92E-03	8.08E-03	7.814E-03	7.95E-03	7.99E-03	7.86E-03	8.24E-03	8.17E-03	7.76E-03	7.72E-03	8.26E-03	8.84E-03	9.47E-03	8.12E-03	9.98E-03	0.007891	9.43E-03	1.07E-02	0.00799	8.98E-03	1.03E-02	1.22E-02

DISC SPRING TECHNOLOGY, LLC.

Working Range Deflection (inch)					STAINLESS STEEL SPRING SIZES / LOADS (lbs)																					
FIG 750 Travel Factor=6	FIG 500 Travel Factor=4	FIG 375 Travel Factor=3	FIG 250 Travel Factor=2	FIG 125 Travel Factor=1	1SS	2SS	3SS	4SS	5SS	6SS	7SS	8SS	9SS	10SS	11SS	12SS	13SS	14SS	15SS	16SS	17SS	18SS	19SS	20SS	21SS	22SS	23SS	Preload
0	0	0	0	0	83	106	133	165	195	254	324	457	601	789	1041	1370	1837	2423	3231	4485	6166	7500	10261	13213	16534	24148	28736	RANGE
3/64	1/32	3/128	1/64	1/128	85	109	136	168	199	259	331	466	614	805	1063	1397	1871	2466	3286	4564	6285	7631	10419	13484	16835	24512	29140	
3/32	1/16	3/64	1/32	1/64	87	111	139	172	203	264	338	476	627	821	1085	1423	1904	2509	3340	4642	6403	7761	10576	13753	17134	24874	29542	
					88	113	141	175	207	269	345	486	640	837	1106	1450	1938	2552	3394	4720	6521	7890	10732	14021	17432	25235	29942	
3/16	1/8	3/32	1/16	1/32	90	115	144	178	212	275	352	495	653	853	1128	1476	1971	2594	3447	4797	6638	8019	10887	14287	17728	25594	30341	
					92	117	147	182	216	280	358	505	665	869	1149	1503	2005	2637	3500	4874	6754	8147	11042	14552	18022	25952	30738	
9/32	3/16	9/64	3/32	3/64	93	120	150	185	220	285	365	514	678	885	1171	1529	2038	2678	3553	4950	6870	8275	11196	14815	18315	26307	31133	
					95	122	152	189	224	290	372	524	690	901	1192	1555	2070	2720	3605	5026	6985	8402	11350	15076	18606	26661	31526	
3/8	1/4	3/16	1/8	1/16	97	124	155	192	228	295	378	533	702	916	1213	1581	2103	2762	3657	5101	7099	8528	11502	15335	18895	27014	31918	
					98	126	158	195	232	300	385	542	715	932	1233	1606	2135	2803	3709	5176	7213	8653	11654	15593	19183	27364	32308	
15/32	5/16	15/64	5/32	5/64	100	128	160	198	236	305	391	551	727	947	1254	1632	2168	2844	3760	5251	7325	8778	11805	15848	19469	27713	32696	
					101	130	163	202	240	310	398	561	739	963	1274	1657	2200	2885	3811	5325	7437	8902	11955	16103	19753	28061	33082	
9/16	3/8	9/32	3/16	3/32	103	132	165	205	244	314	404	570	751	978	1295	1682	2231	2925	3862	5399	7549	9025	12105	16355	20036	28406	33467	
					105	134	168	208	247	319	410	579	763	993	1315	1707	2263	2966	3912	5473	7659	9148	12254	16606	20317	28750	33850	
21/32	7/16	21/64	7/32	7/64	106	136	171	211	251	324	417	588	774	1008	1335	1732	2295	3006	3962	5546	7769	9270	12402	16855	20596	29093	34231	
					108	138	173	214	255	329	423	597	786	1023	1355	1757	2326	3046	4011	5618	7879	9391	12549	17102	20874	29433	34610	
3/4	1/2	3/8	1/4	1/8	109	140	176	218	259	334	429	605	798	1038	1375	1781	2357	3085	4061	5690	7987	9511	12696	17348	21149	29772	34988	
					111	142	178	221	263	338	435	614	809	1052	1395	1805	2388	3125	4109	5762	8095	9631	12842	17592	21424	30109	35364	
27/32	9/16	27/64	9/32	9/64	112	144	181	224	266	343	441	623	821	1067	1414	1830	2418	3164	4158	5834	8202	9750	12987	17834	21696	30445	35738	
					114	146	183	227	270	348	447	631	832	1082	1433	1854	2449	3203	4206	5904	8308	9868	13131	18074	21967	30779	36111	
15/16	5/8	15/32	5/16	5/32	115	148	186	230	274	352	453	640	843	1096	1453	1878	2479	3242	4254	5975	8414	9986	13275	18313	22236	31111	36482	
					117	150	188	233	277	357	459	648	855	1110	1472	1901	2509	3280	4301	6045	8519	10103	13418	18550	22503	31441	36851	
1 1/32	11/16	33/64	11/32	11/64	118	152	190	236	281	361	465	657	866	1124	1491	1925	2539	3318	4348	6115	8623	10219	13560	18786	22769	31770	37218	
					120	154	193	239	285	366	471	665	877	1138	1510	1948	2569	3356	4395	6184	8727	10335	13701	19019	23033	32097	37583	
1 1/8	3/4	9/16	3/8	3/16	121	156	195	242	288	370	477	673	888	1152	1528	1971	2598	3394	4441	6253	8830	10450	13842	19251	23296	32423	37947	
					122	158	197	245	292	375	483	682	899	1166	1547	1994	2628	3431	4487	6321	8932	10564	13982	19482	23556	32746	38309	
1 7/32	13/16	39/64	13/32	13/64	124	160	200	248	295	379	489	690	909	1180	1565	2017	2657	3469	4533	6389	9034	10677	14121	19710	23815	33068	38670	
					125	161	202	251	299	384	494	698	920	1194	1583	2040	2686	3506	4578	6456	9134	10790	14259	19937	24073	33389	39028	
1 5/16	7/8	21/32	7/16	7/32	126	163	204	253	302	388	500	706	931	1207	1601	2062	2715	3542	4623	6524	9234	10902	14397	20162	24328	33708	39385	
					128	165	207	256	306	392	506	714	941	1221	1619	2085	2743	3579	4668	6590	9334	11013	14534	20385	24582	34025	39740	
1 13/32	15/16	45/64	15/32	15/64	129	167	209	259	309	397	511	722	952	1234	1637	2107	2772	3615	4712	6656	9432	11124	14670	20607	24835	34340	40093	
					130	169	211	262	312	401	517	730	962	1247	1655	2129	2800	3651	4756	6722	9530	11234	14806	20827	25085	34654	40445	
1 1/2	1	3/4	1/2	1/4	132	171	213	265	316	405	522	738	972	1260	1672	2151	2828	3687	4799	6788	9627	11343	14940	21045	25334	34965	40795	
					----	172	216	267	----	----	528	745	----	1273	1690	2173	2856	3723	4842	6853	9724	11452	15074	21262	25582	35276	41143	
1 19/32	1 1/16	51/64	17/32	17/64	----	----	----	----	----	----	533	----	----	1286	----	2194	2883	3758	4885	6917	9820	11559	15208	21477	25827	35584	41489	
					----	----	----	----	----	----	538	----	----	----	----	2216	2911	3793	4928	6981	9915	11667	15340	----	26071	35891	41834	
1 11/16	1 1/8	27/32	9/16	9/32	----	----	----	----	----	----	544	----	----	----	----	2237	2938	3828	4970	7045	10009	11773	15472	----	26313	36197	42177	
					----	----	----	----	----	----	549	----	----	----	----	----	2965	3863	5012	7109	----	11879	15603	----	26554	36500	42518	
1 25/32	1 3/16	57/64	19/32	19/64	----	----	----	----	----	----	554	----	----	----	----	----	2992	3897	5053	7171	----	11984	15733	----	26793	36802	42858	
					----	----	----	----	----	----	559	----	----	----	----	----	----	3932	5094	7234	----	12088	15862	----	27030	37102	43195	
1 7/8	1 1/4	15/16	5/8	5/16	----	----	----	----	----	----	----	----	----	----	----	----	----	----	5135	7296	----	12192	15991	----	27265	37401	43531	
					----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	7358	----	----	16119	----	27499	37697	43866	
1 31/32	1 5/16	63/64	21/32	21/64	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	7419	----	----	16247	----	27731	37993	44198	
					----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	7480	----	----	16373	----	27962	38286	44529	
2 1/16	1 3/8	1 1/32	11/16	11/32	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	7540	----	----	16499	----	----	38578	44858	
					----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	16624	----	----	38868	45185	
2 5/32	1 7/16	1 5/64	23/32	23/64	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	39156	45511	
					----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	45835	
2 1/4	1 1/2	1 1/8	3/4	3/8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	46157	SPRING
3/64	1/32	3/128	1/64	1/128																								

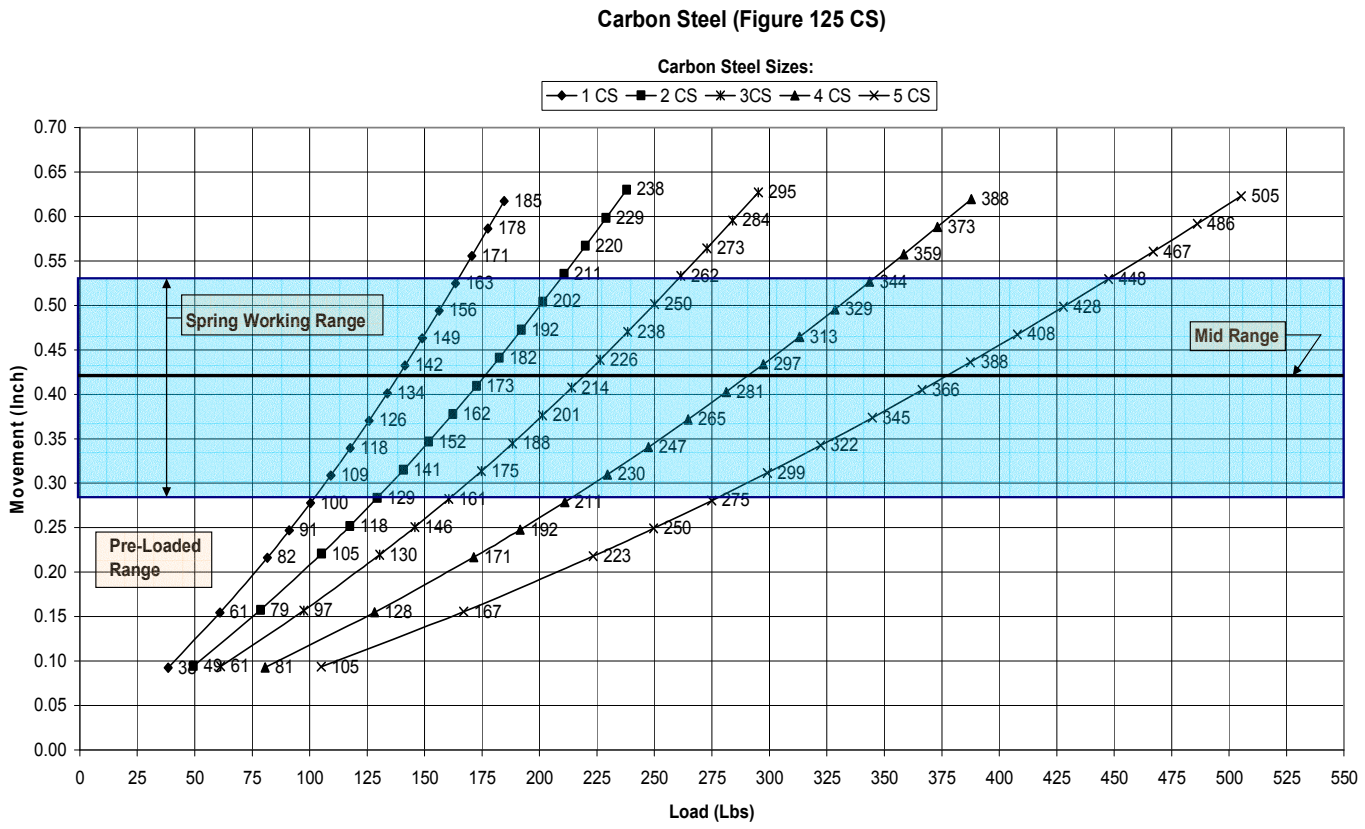
GRADUATION FOR EACH ROW SHOWN ABOVE			VARIABILITY = ABS. VALUE(OPERATING LOAD - INSTALLED LOAD)/OPERATING LOAD	EFFECTIVE SPRING RATE = ABSOLUTE VALUE (OPERATING LOAD - INSTALLED LOAD) / MOVEMENT																			
		A	-111.4975	-117.18729	-146.97599	-184.51636	-228.42682	-272.49016	-366.63366	-526.38235	-697.79387	-853.9679	-1161.718	-1332.4579	-1577.6586	-1932.6175	-2900.44896	-3450.86496	-5787.3867	-5749.37054	-6091.59993	-14010.718	-13782.2338	-13789.817	-14243.042
$Y_I = (X^2*A+X*B+C)$ Load Lbs.	Constants	B	285.72116	354.95783	444.71153	554.11925	670.83251	835.94853	1096.28807	1558.62916	2059.40789	2608.75868	3496.2626	4294.70385	5411.76929	6879.53333	9033.49611	12507.38064	18990.6938	20875.33917	25134.01944	43254.2858	47990.16797	58012.5887	64316.4192
		C	10.65897	11.91198	14.90806	18.43667	21.82689	28.41313	36.3185	51.13227	67.33927	88.29519	116.57843	153.36411	205.67254	271.32066	417.83992	502.24496	690.41461	839.76467	1148.95585	1479.47868	1851.38076	2703.93835	3217.74608
INITIAL MOVEMENT		XO	0.28593	0.29484	0.294525	0.29232	0.2858625	0.29862	0.29106	0.288225	0.28728	0.29736	0.29295	0.31374	0.3339	0.3465	0.351	0.3528	0.31941	0.35343	0.401625	0.30051	0.33894	0.4095	0.439551
		D	1.50E-05	7.08E-06	4.52E-06	2.93E-06	2.04E-06	1.26E-06	7.52E-07	3.76E-07	2.16E-07	1.30E-07	7.35E-08	4.55E-08	2.69E-08	1.60E-08	1.29E-08	4.77E-09	2.28E-09	1.71E-09	1.04E-09	4.68E-10	3.37E-10	1.91E-10	1.45E-10
$X_P = (Y^2*D+Y*E+F)$ Mvmt. Inches	Constants	E	1.83E-03	1.94E-03	1.55E-03	1.24E-03	1.03E-03	8.23E-04	6.28E-04	4.42E-04	3.34E-04	2.64E-04	1.97E-04	1.60E-04	1.27E-04	1.00E-04	5.60E-05	5.50E-05	3.60E-05	3.30E-05	2.70E-05	1.60E-05	1.40E-05	1.20E-05	1.10E-05
		F	2.63E-02	8.40E-03	8.39E-03	8.33E-03	8.15E-03	8.51E-03	8.30E-03	8.21E-03	8.19E-03	8.48E-03	8.35E-03	8.94E-03	9.52E-03	9.88E-03	3.45E-02	1.01E-02	9.10E-03	1.01E-02	1.14E-02	8.57E-03	9.66E-03	1.17E-02	1.25E-02

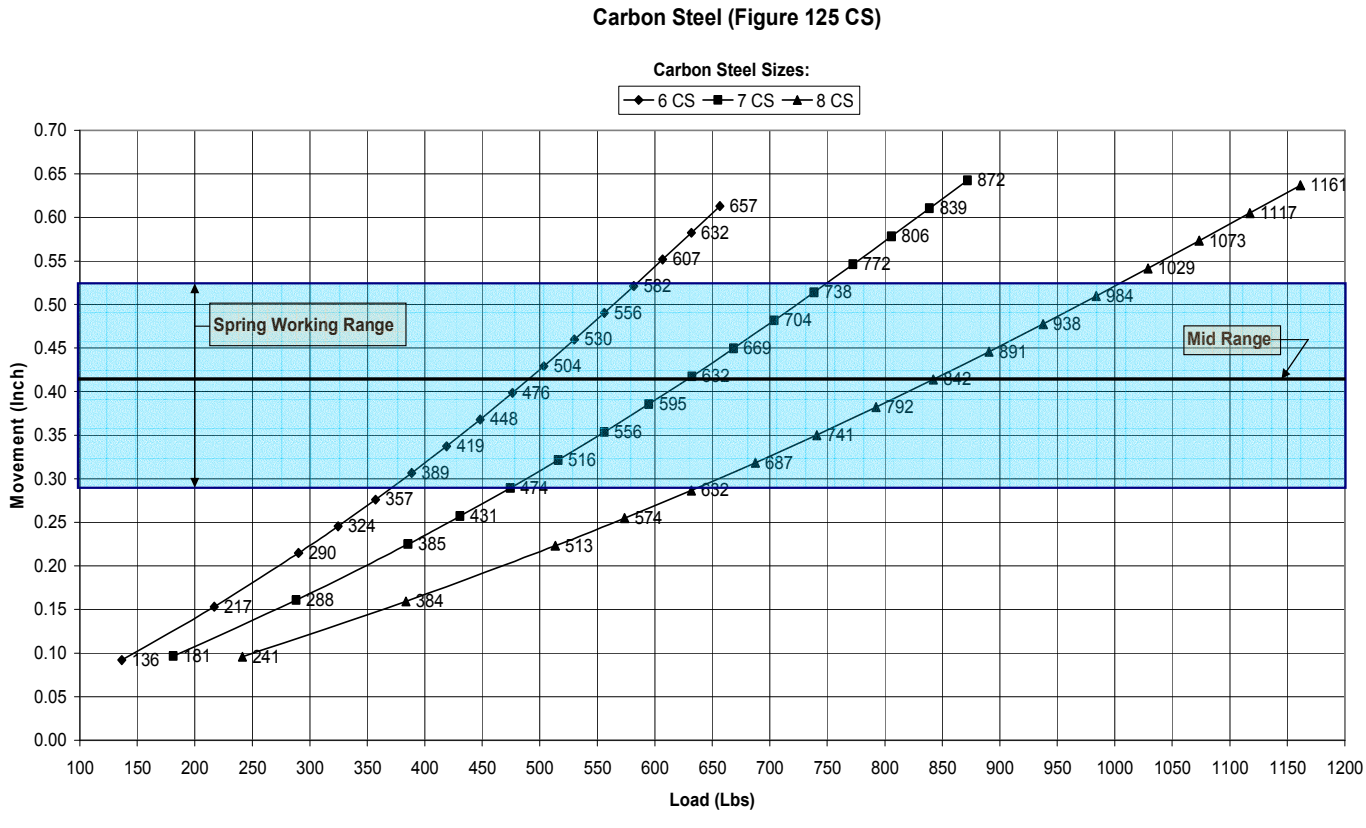
SPRING SUPPORT SELCTION GRAPHS

As an illustrative tool, we have also provided a series of graphs to show the load vs. deflection (movement) range per support. The graphs are separated into two materials: carbon steel and stainless steel. The spring sizes are separated into five figure numbers (125, 250, 375, 500 and 750) similar to the spring support selection tables. The working range is indicated by the blue region in each graph.

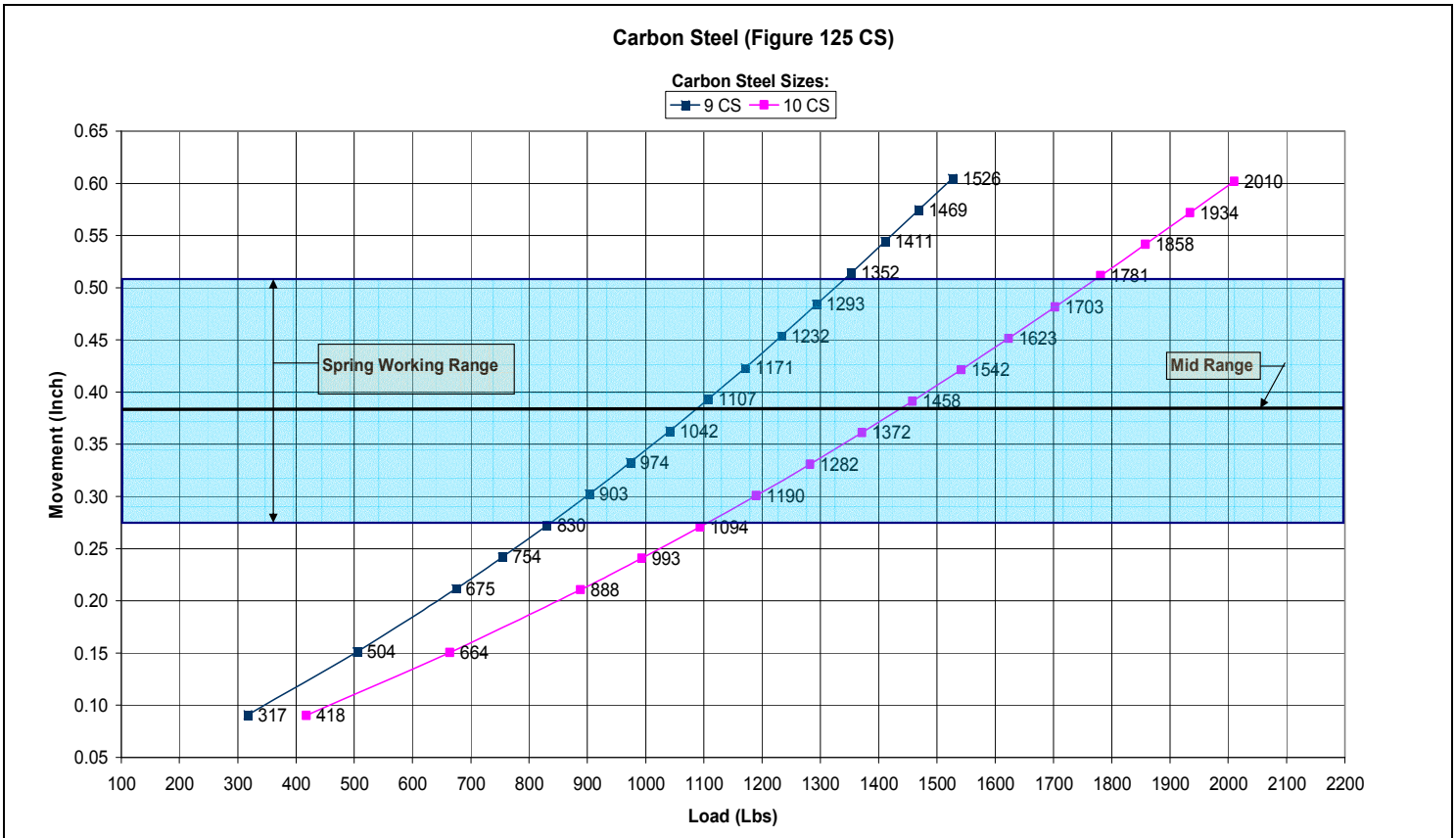
In order to simplify the number of graphs, we have only supplied the Figure 125 movement class of each material. Since the load range (x-axis) for each support figure is equal for the five figure classes, all that is needed to locate the size equal to the support chosen in the selection tables is to multiply the movement (y-axis) by the scalar quantity of the movement (figure) that is desired. For example, if the known load range is between 600 lbs and 725 lbs and the desired movement is 3/8", a Figure 375 support is needed to produce a movement of 0.375". The movement for this load range is read on the y-axis as a movement between 0.34" and 0.45". To find the movement with the same load range for a Figure 375 carbon steel support, multiply the 0.34" and 0.45" by 3 yielding 1.02" and 1.35", respectfully (and a displacement of 0.33"). To find the movement of the same load range for a 1/2" movement (or a Figure 500 carbon steel support), multiply the 0.34" and 0.45" by 4 yielding 1.36" and 1.80", respectfully (or a displacement of 0.44").

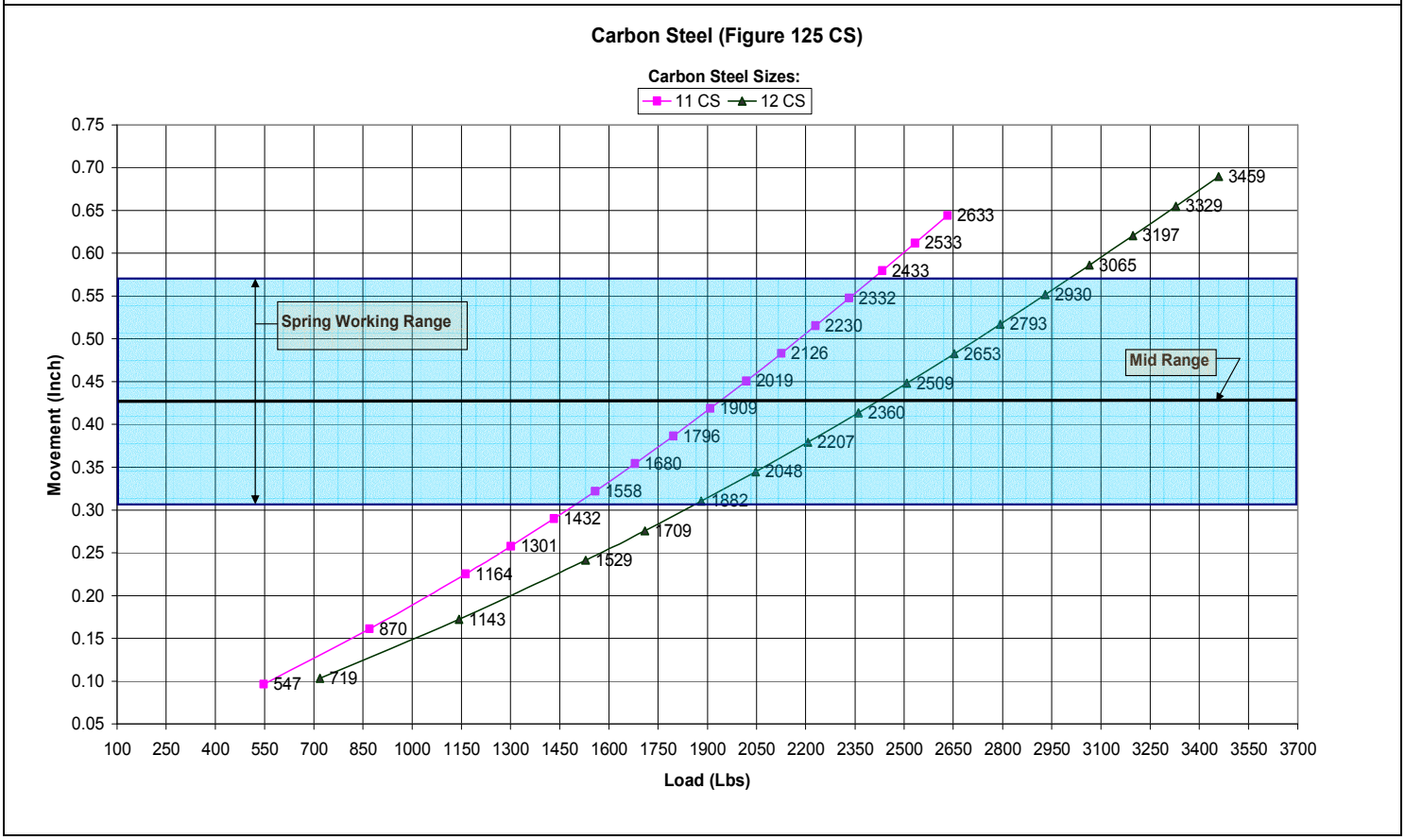
CARBON STEEL



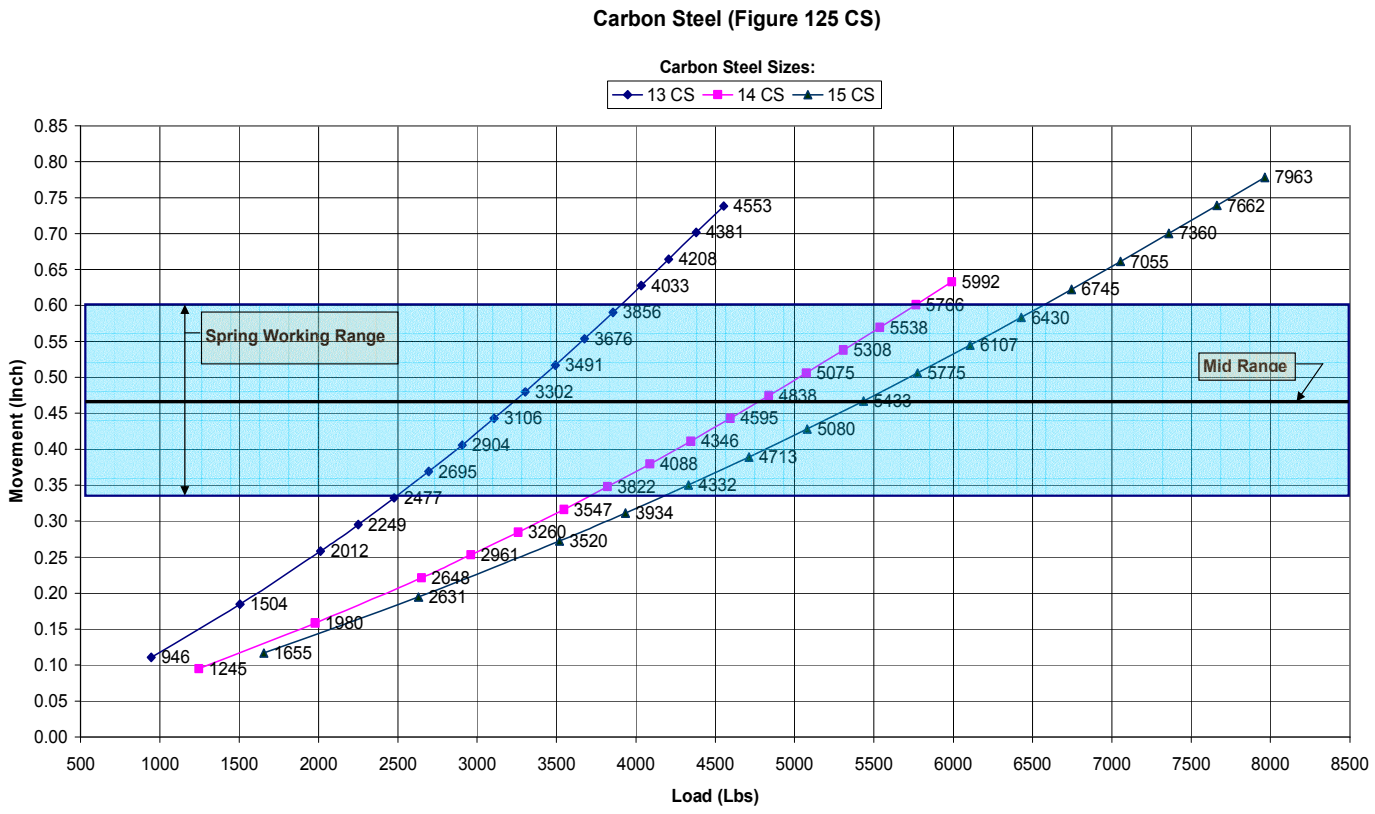


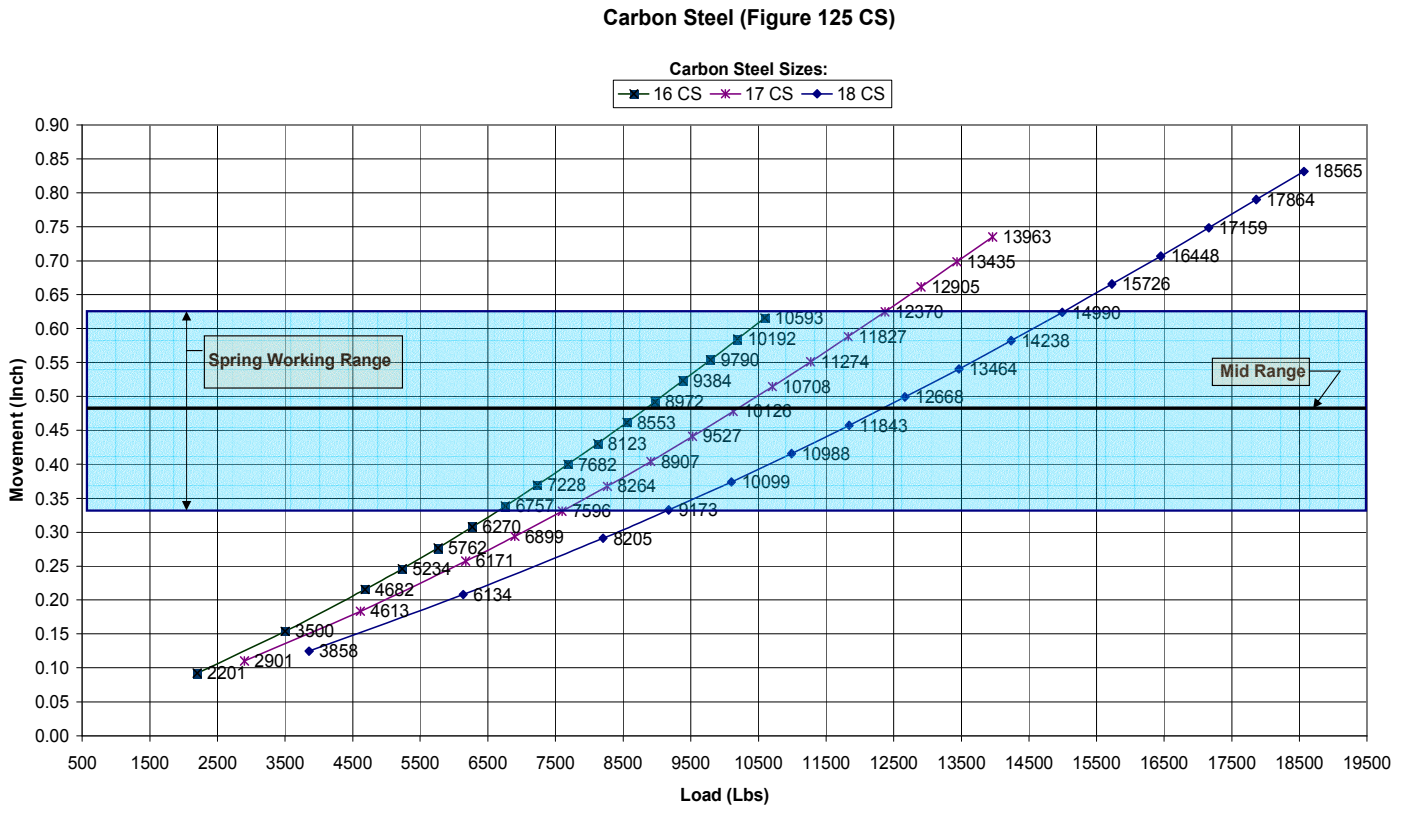
CARBON STEEL



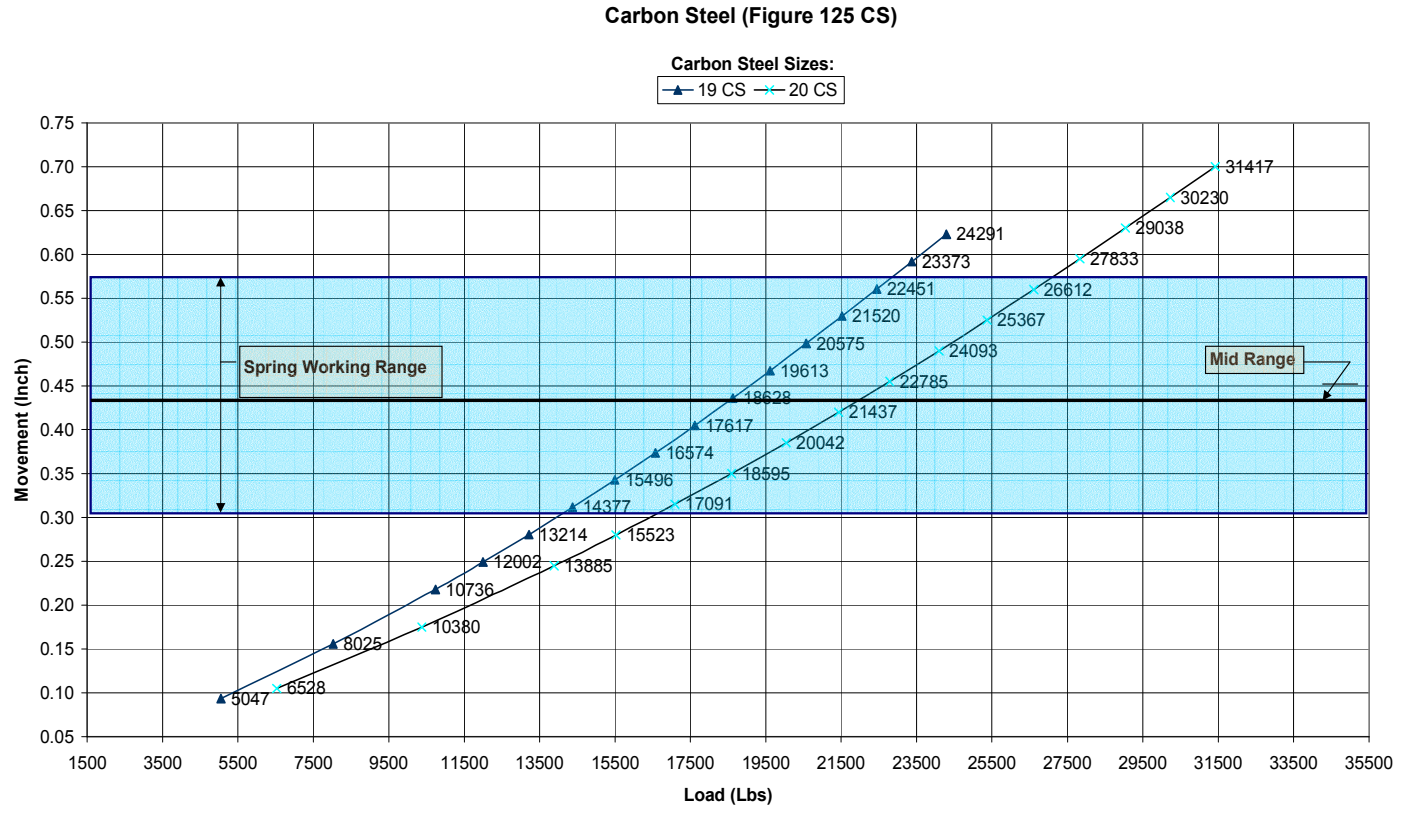


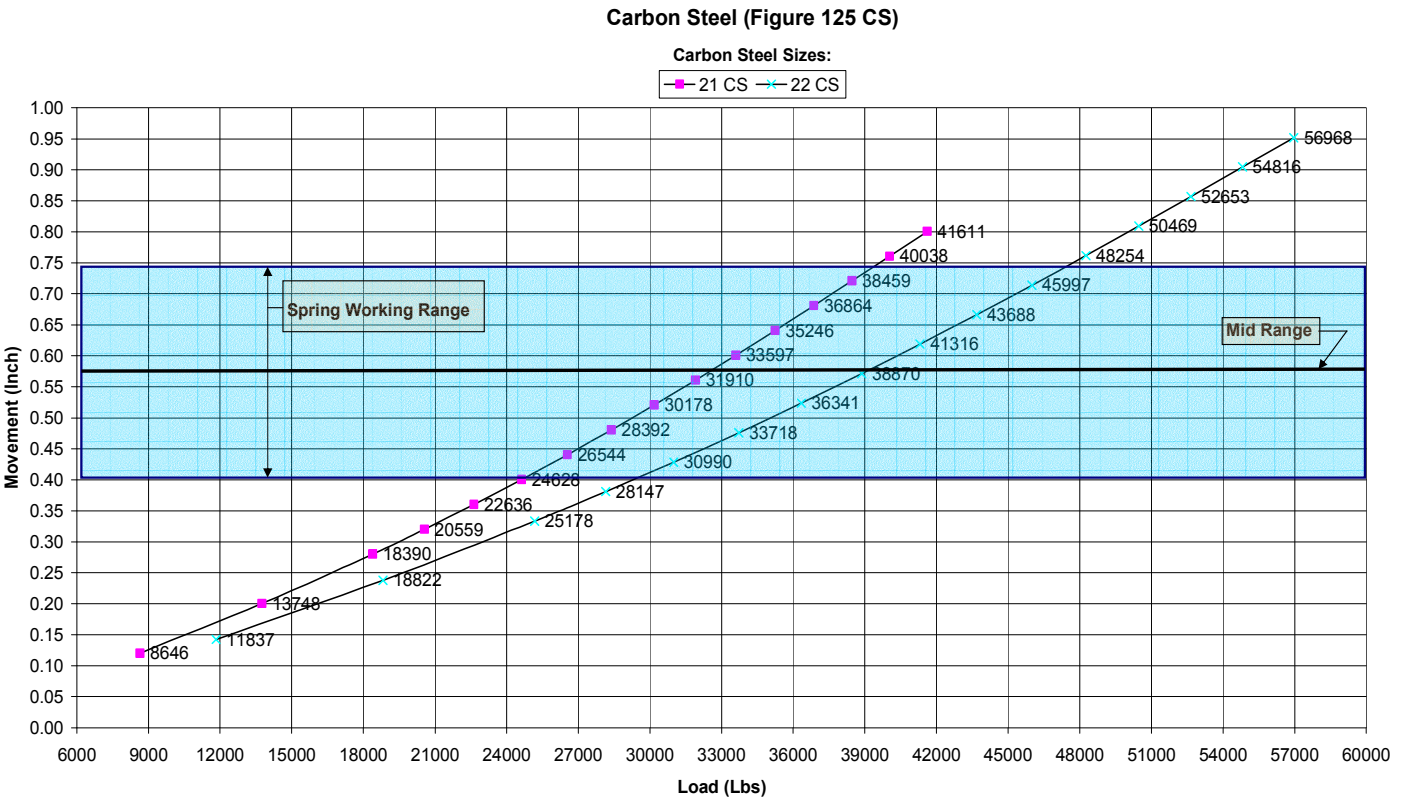
CARBON STEEL



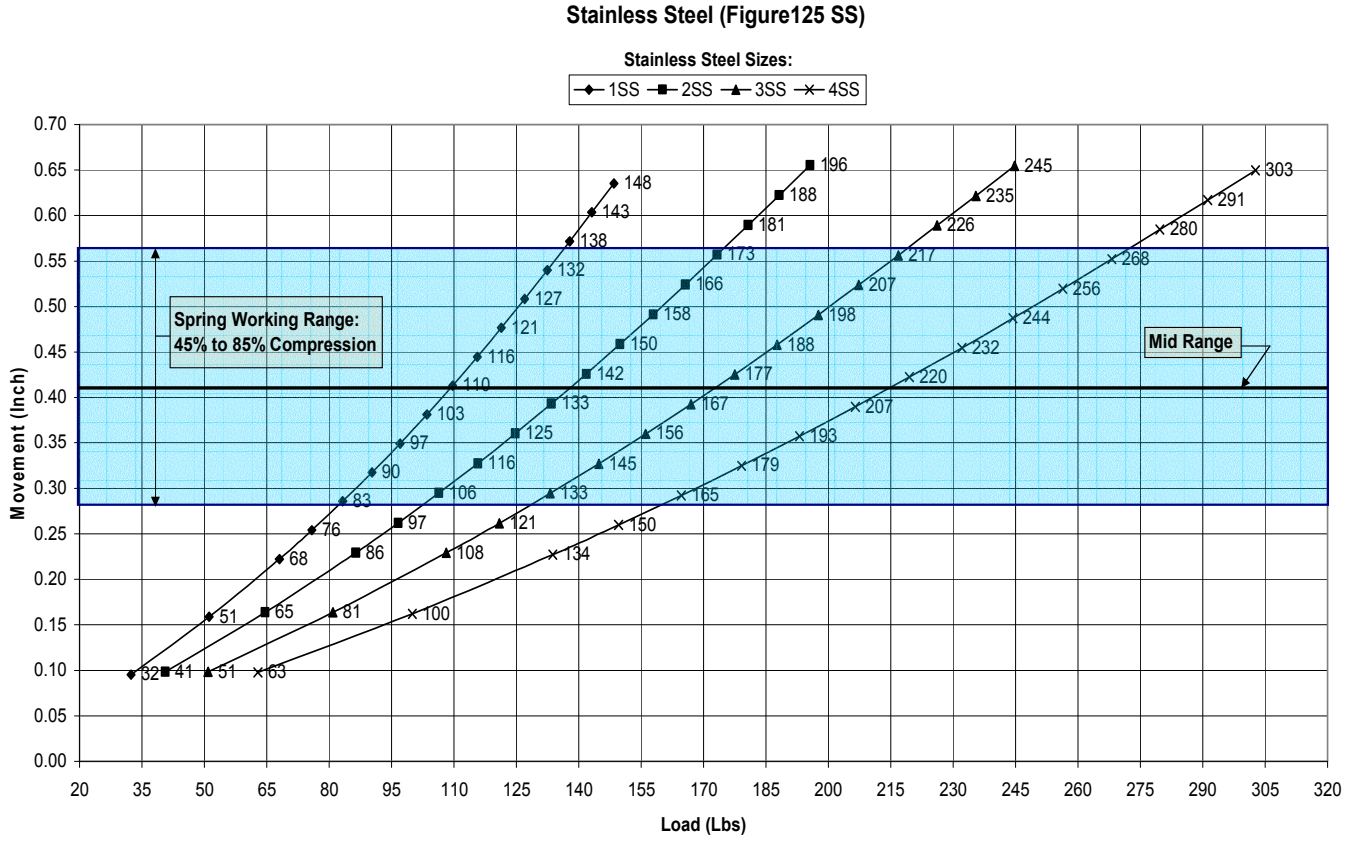


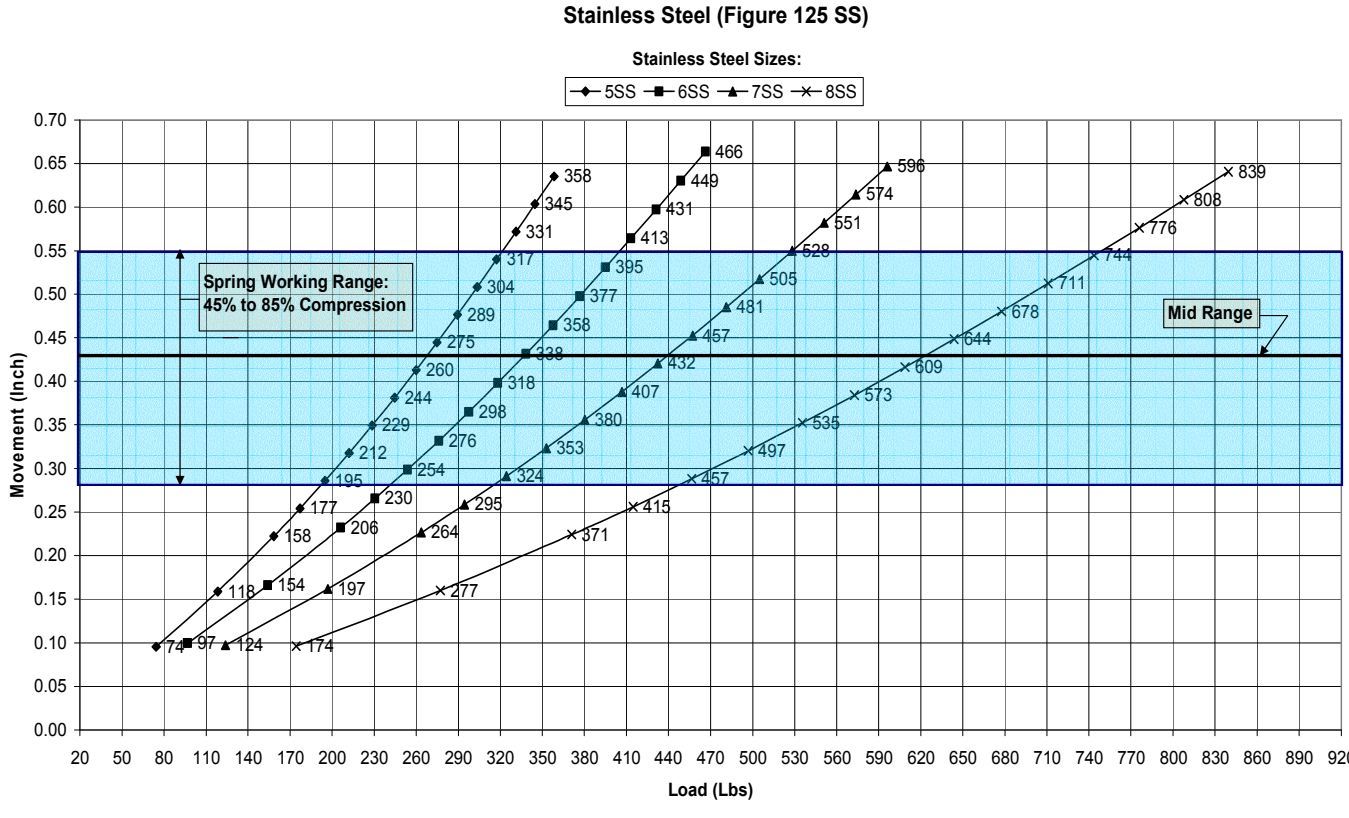
CARBON STEEL



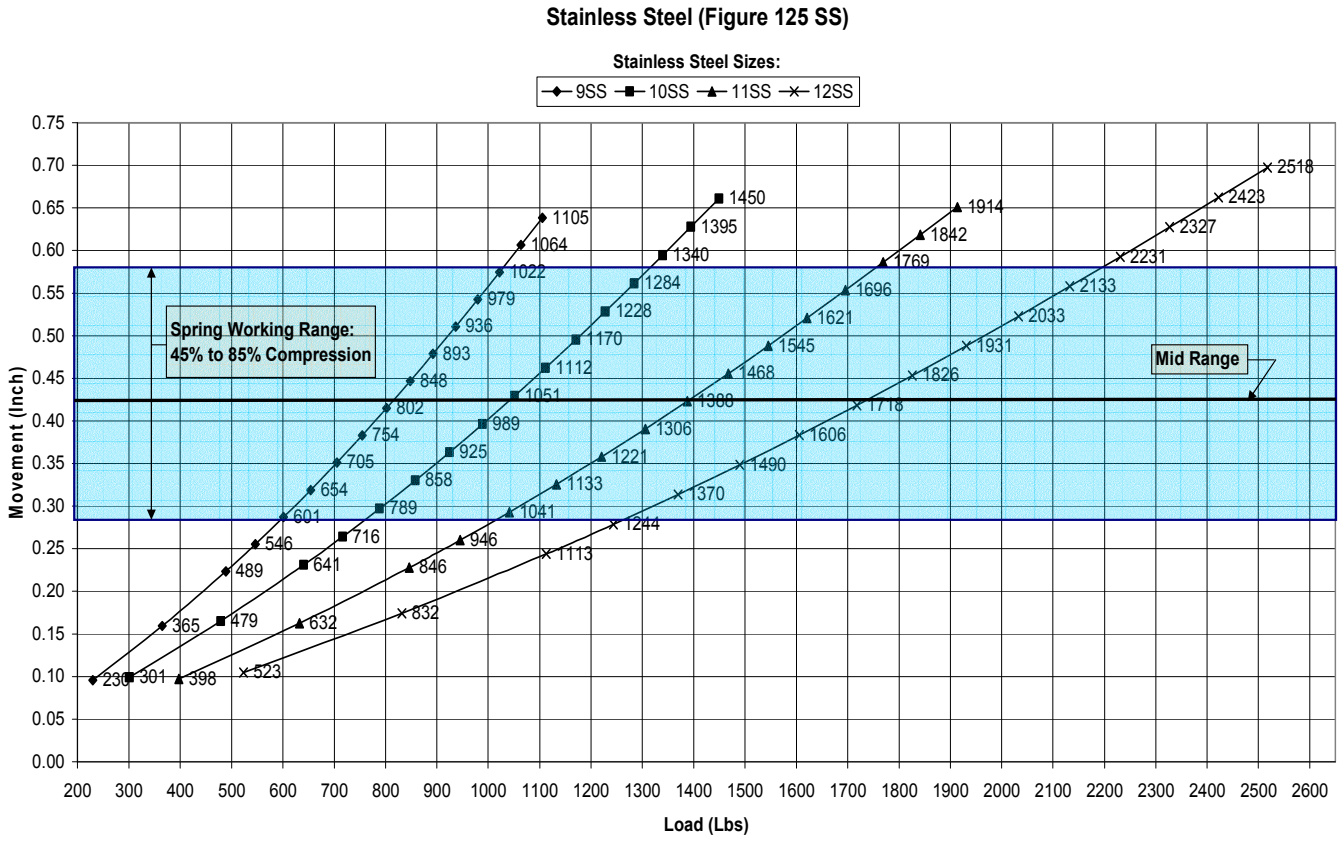


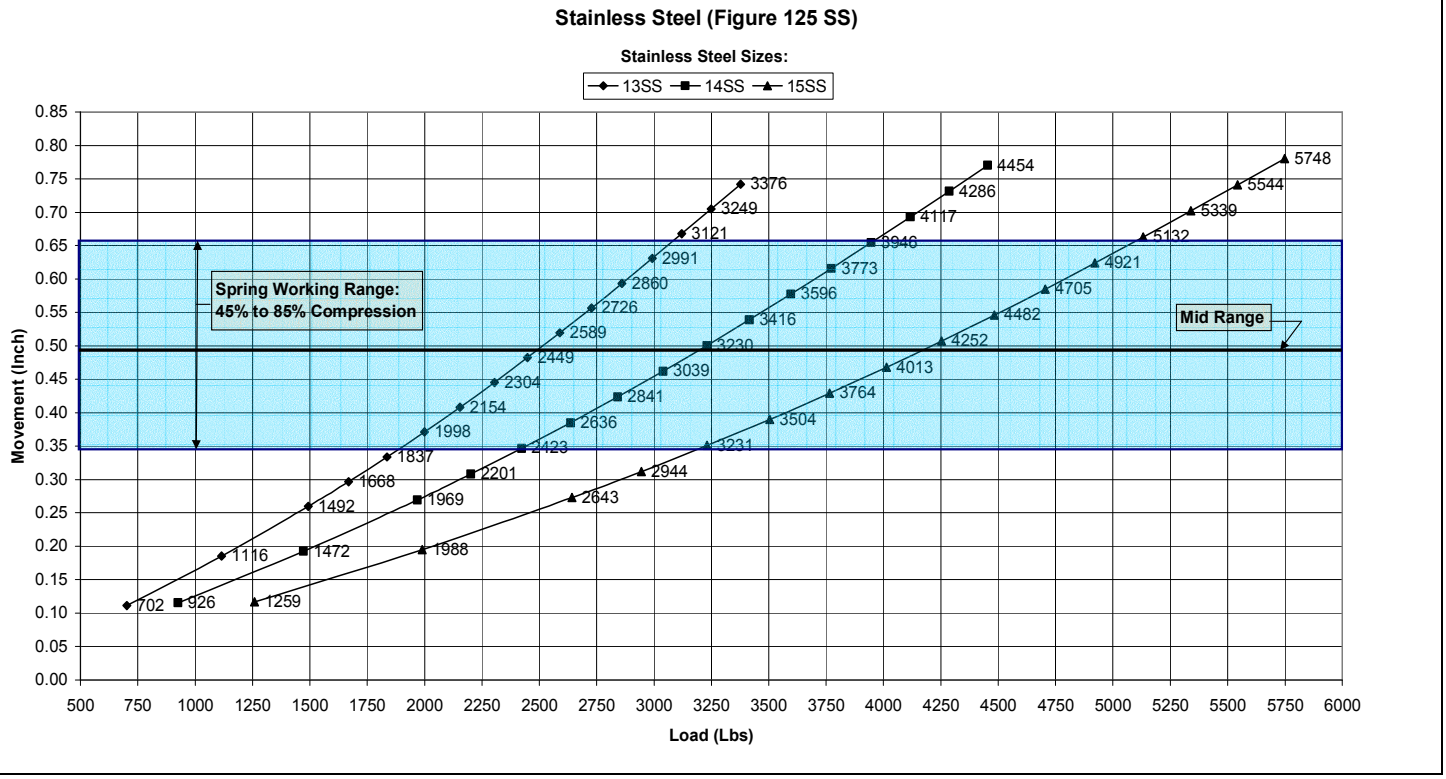
STAINLESS STEEL



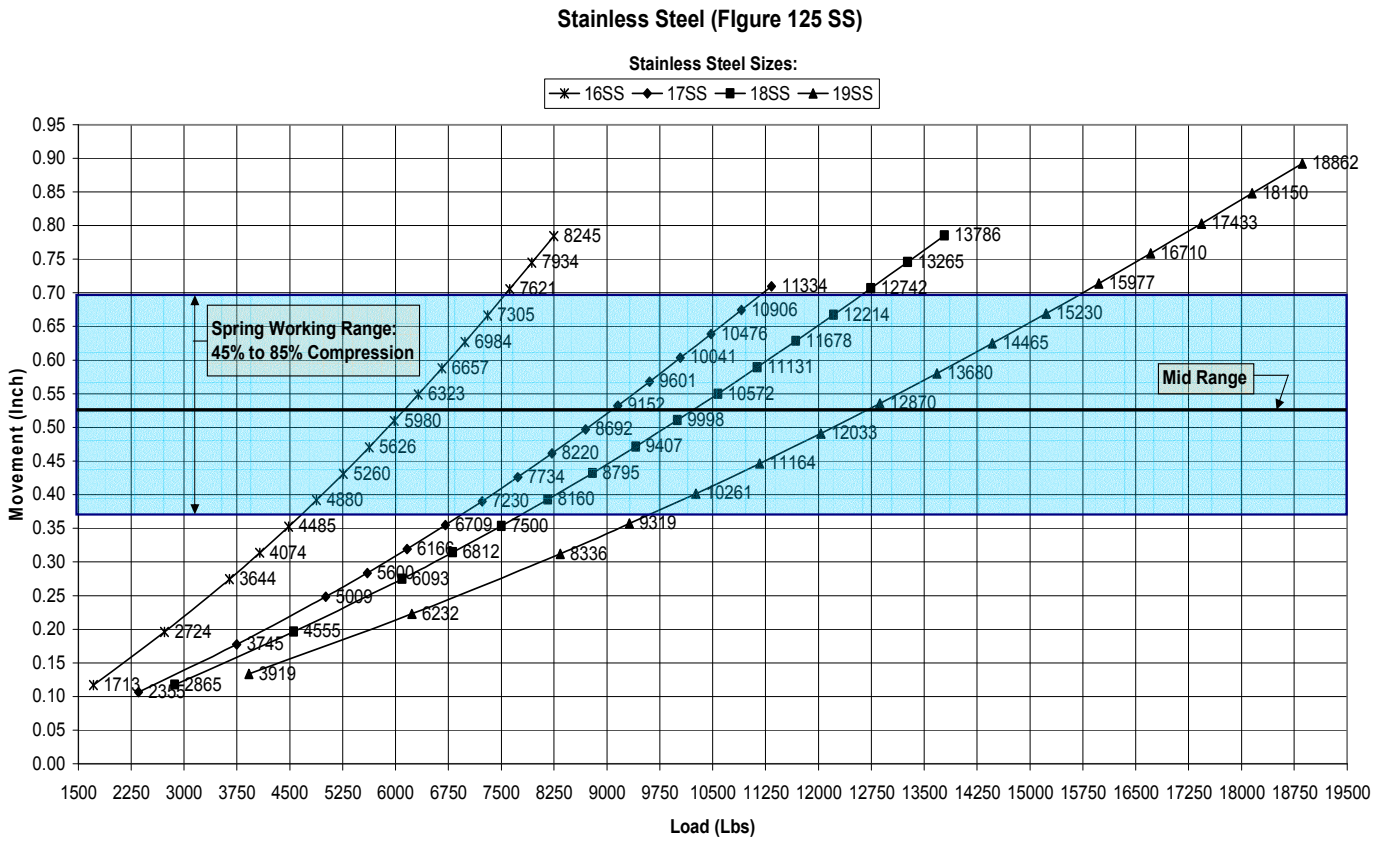


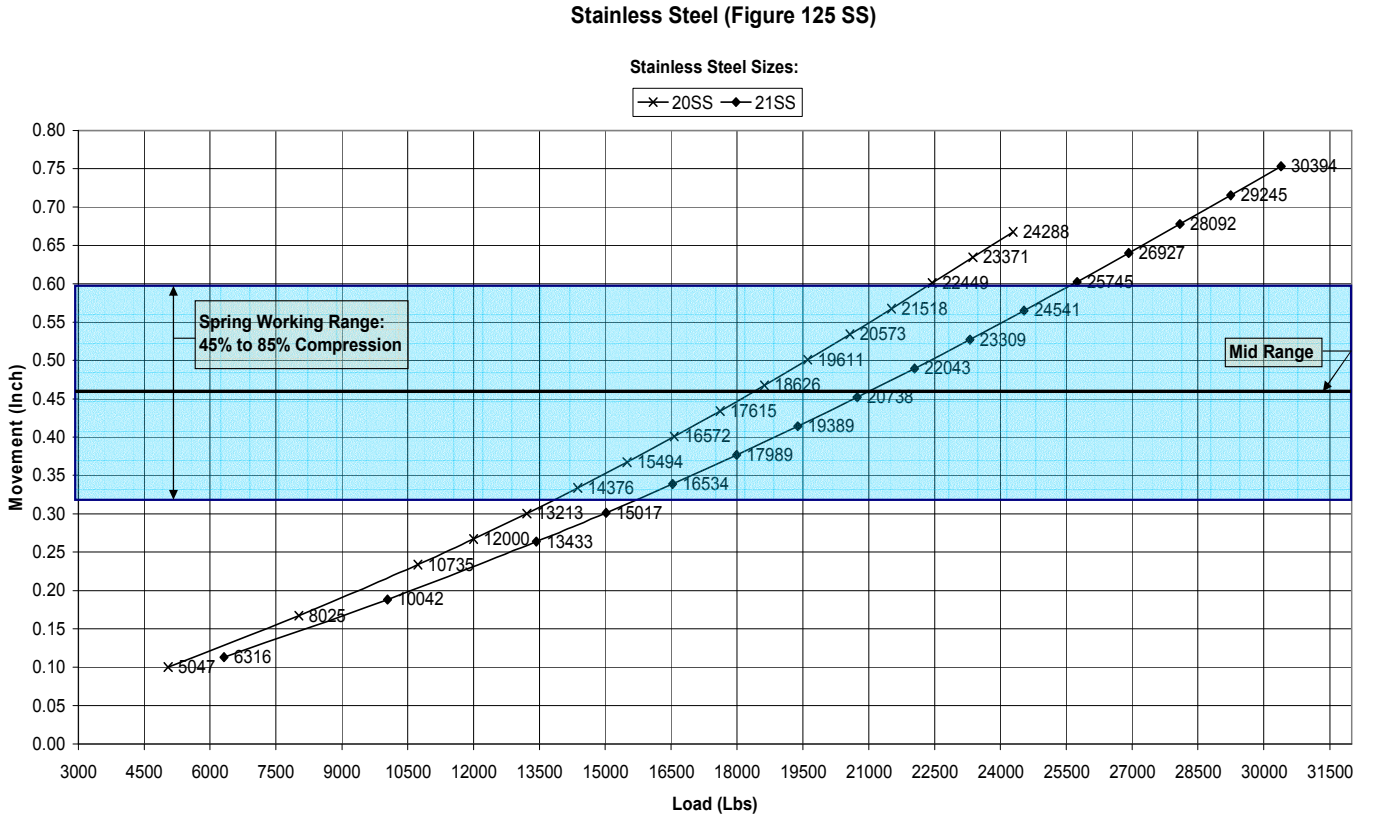
STAINLESS STEEL



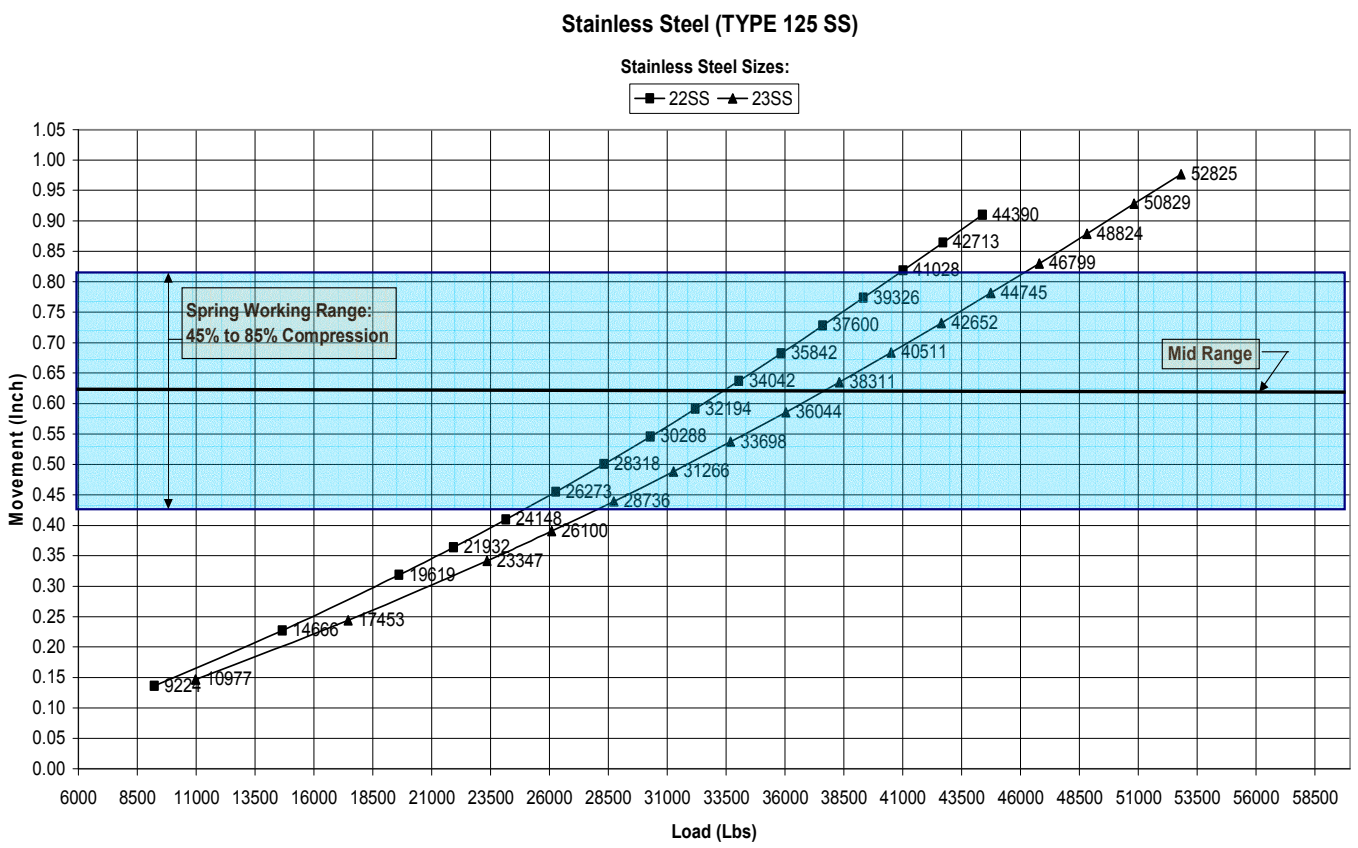


STAINLESS STEEL





STAINLESS STEEL

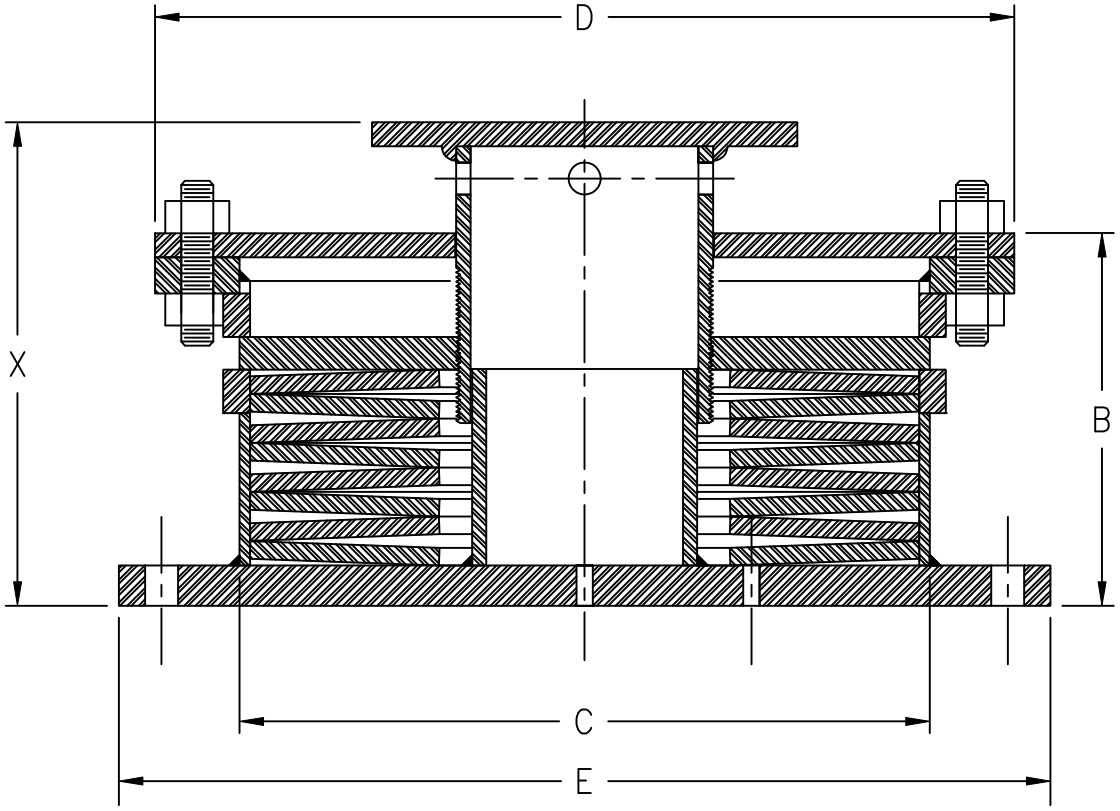


DST CARBON STEEL SPRING SUPPORT TYPES, FIGURES AND SIZES

The overall dimensions of each figure type are provided in this section.
DST Carbon Steel Spring Supports are divided into five displacement categories:

1) Figure 125 - Supports that will satisfy movements up to (1/8”),
2) Figure 250 - Supports that will satisfy movements up to (1/4”),
3) Figure 375 - Supports that will satisfy movements up to (3/8”),
4) Figure 500 - Supports that will satisfy movements up to (1/2”),
5) Figure 750 - Supports that will satisfy movements up to (3/4”).

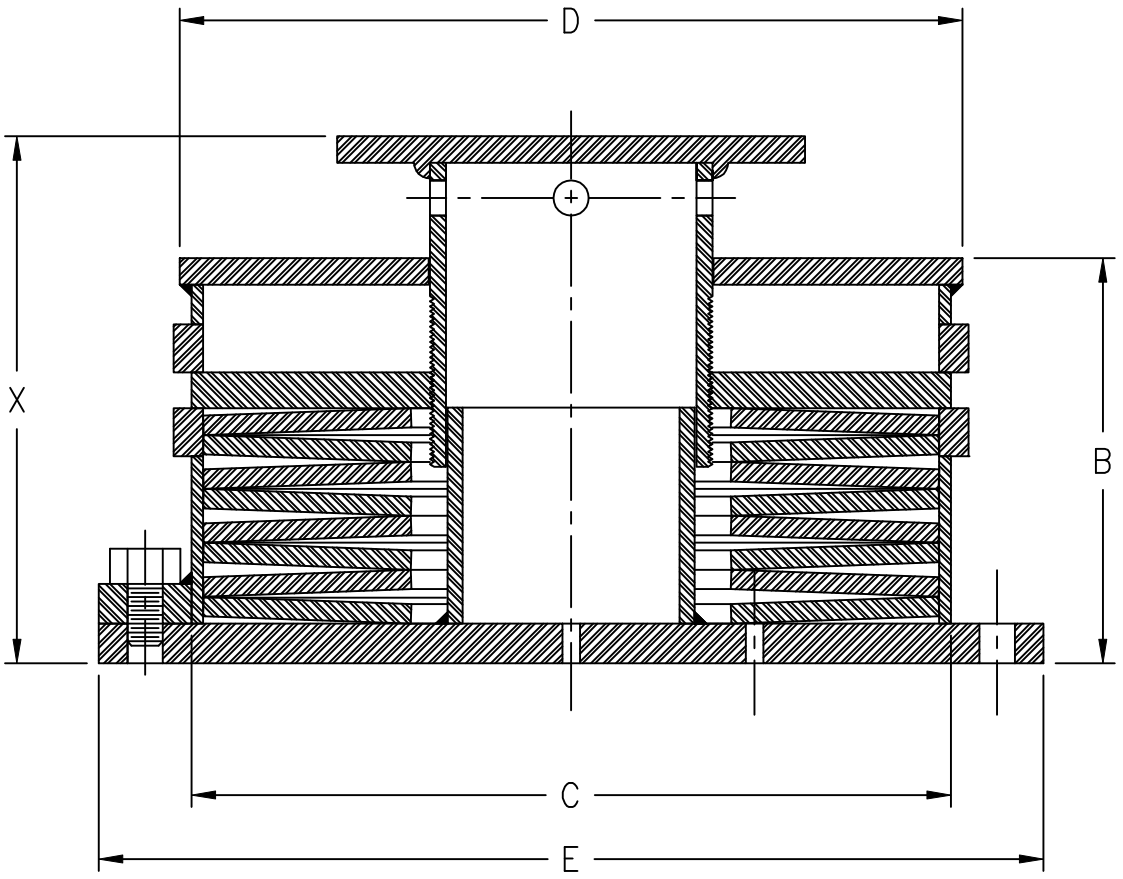
Figure 125 CS Type F



Item SIZE	Casing Length B	Casing Diam. C	Cover Plate Diam. D	Base Plate Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Base Plate Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1CS	2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 1/2	3 7/8	1.0500	2	3/16	4
2CS	2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 9/16	3 15/16	1.0500	3 7/8	3/16	4
3CS	2	2 7/8	4 7/8	4 7/8	4	3/8	3/16	3 9/16	3 15/16	1.3150	3 7/8	3/16	5
4CS	2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 9/16	3 15/16	1.0500	3 7/8	3/16	4
5CS	2	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/16	3 9/16	3 15/16	1.9000	3 7/8	3/16	10
6CS	2 1/8	2 7/8	4 7/8	4 7/8	4	3/8	1/4	3 3/4	4 3/16	1.3150	3 7/8	3/16	6
7CS	2 5/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/8	4	4 7/16	1.9000	3 7/8	1/4	12
8CS	2 9/16	6 5/8	8 5/8	8 5/8	7 3/4	1/2	3/8	4 3/8	4 15/16	3 1/2	3 7/8	3/8	22
9CS	2 5/8	6 5/8	8 5/8	8 5/8	7 3/4	1/2	1/2	4 3/8	4 15/16	2 7/8	3 7/8	1/4	25
10CS	2 11/16	8 5/8	10 3/4	10 3/4	9 7/8	1/2	1/2	4 9/16	5 3/16	4 1/2	5 3/4	3/8	41
11CS	2 7/8	8 5/8	9	9	8	1/2	5/8	4 13/16	5 7/16	4 1/2	6 3/8	3/8	37
12CS	3	8 5/8	9	9	8	3/4	5/8	5	5 5/8	4 1/2	6 3/8	3/8	39
13CS	3 7/16	8 5/8	12	12	10 1/2	3/4	3/4	5 5/8	6 3/8	4 1/2	6 3/8	1/2	65
14CS	3 7/8	8 5/8	12	12	10 1/2	3/4	3/4	6 1/8	6 13/16	4 1/2	8 3/8	1/2	76
15CS	4 3/16	10 3/4	14 3/8	14 3/8	12 7/8	3/4	3/4	6 9/16	7 1/2	4 1/2	8 3/8	5/8	119
16CS	3 15/16	10 3/4	14 1/2	14 1/2	13	3/4	3/4	6 5/16	7	5 9/16	8 3/8	5/8	115
17CS	4 3/16	12 3/4	17 3/8	17 3/8	15 7/16	1	3/4	6 7/8	7 3/4	5 9/16	8 3/8	3/4	179
18CS	5 1/8	14	19	19	17	1	1	8 1/8	9 1/8	5 9/16	8 3/8	1	259
19CS	5 1/4	16	21	21	19	1	1	8 1/16	8 3/4	6 5/8	12 1/2	1	330
20CS	5 1/2	18	23	23	21	1	1	9	9 13/16	8 5/8	12 1/2	1 1/4	417
21CS	6 5/16	20	25	25	23	1	1	10 1/4	11 1/4	8 5/8	12 1/2	1 1/2	557
22CS	7 1/8	24	29	29	27	1	1	11 5/16	12 7/16	10 3/4	12 1/2	1 5/8	787

Type F is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

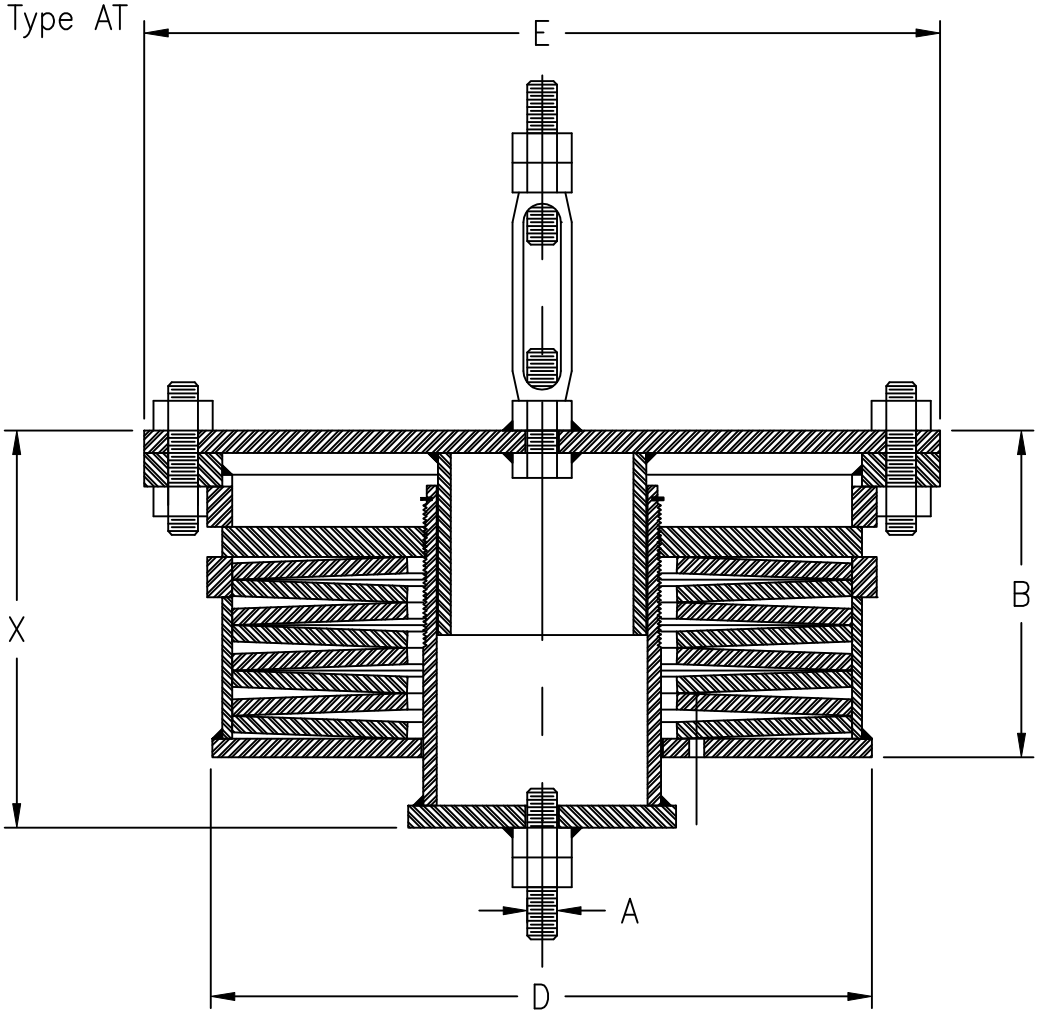
Figure 125 CS Type FW



Item SIZE	Casing Length B	Casing Diam. C	Flange Diam. D	Bottom Flange Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Bottom Flange Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1CS	2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 1/2	3 11/16	1.0500	2	3/16	4
2CS	2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 9/16	3 3/4	1.0500	3 7/8	3/16	4
3CS	2	2 7/8	4 7/8	4 7/8	4	3/8	3/16	3 9/16	3 3/4	1.3150	3 7/8	3/16	5
4CS	2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 9/16	3 3/4	1.0500	3 7/8	3/16	4
5CS	2	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/16	3 9/16	3 3/4	1.9000	3 7/8	3/16	10
6CS	2 1/8	2 7/8	4 7/8	4 7/8	4	3/8	1/4	3 3/4	4	1.3150	3 7/8	3/16	6
7CS	2 5/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/8	4	4 1/4	1.9000	3 7/8	1/4	12
8CS	2 9/16	6 5/8	8 5/8	8 5/8	7 3/4	1/2	3/8	4 3/8	4 3/4	3 1/2	3 7/8	3/8	22
9CS	2 5/8	6 5/8	8 5/8	8 5/8	7 3/4	1/2	1/2	4 3/8	4 3/4	2 7/8	3 7/8	1/4	25
10CS	2 11/16	8 5/8	10 3/4	10 3/4	9 7/8	1/2	1/2	4 1/2	4 7/8	4 1/2	5 3/4	3/8	41
11CS	2 7/8	8 5/8	9	9	8	1/2	5/8	4 3/4	5 1/8	4 1/2	6 3/8	3/8	37
12CS	3	8 5/8	9	9	8	3/4	5/8	5	5 3/8	4 1/2	6 3/8	3/8	38
13CS	3 7/16	8 5/8	12	12	10 1/2	3/4	3/4	5 5/8	6 1/8	4 1/2	6 3/8	1/2	65
14CS	3 7/8	8 5/8	12	12	10 1/2	3/4	3/4	6 5/16	7 1/16	4 1/2	8 3/8	1/2	76
15CS	4 3/16	10 3/4	14 3/8	14 3/8	12 7/8	3/4	3/4	6 5/8	7 3/8	4 1/2	8 3/8	5/8	119
16CS	3 15/16	10 3/4	14 1/2	14 1/2	13	3/4	3/4	6 7/16	7 3/16	5 9/16	8 3/8	5/8	116
17CS	4 3/16	12 3/4	17 3/8	17 3/8	15 7/16	1	3/4	7 1/16	7 13/16	5 9/16	8 3/8	3/4	180
18CS	5 1/8	14	19	19	17	1	1	8 7/16	9 7/16	5 9/16	8 3/8	1	260
19CS	5 1/4	16	21	21	19	1	1	8 15/16	10 3/16	6 5/8	12 1/2	1	334
20CS	5 1/2	18	23	23	21	1	1	9 7/8	11 1/8	8 5/8	12 1/2	1 1/4	421
21CS	6 5/16	20	25	25	23	1	1	11 3/8	12 7/8	8 5/8	12 1/2	1 1/2	562
22CS	7 1/8	24	29	29	27	1	1	12 7/16	14 3/16	10 3/4	12 1/2	1 5/8	793

Type FW is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

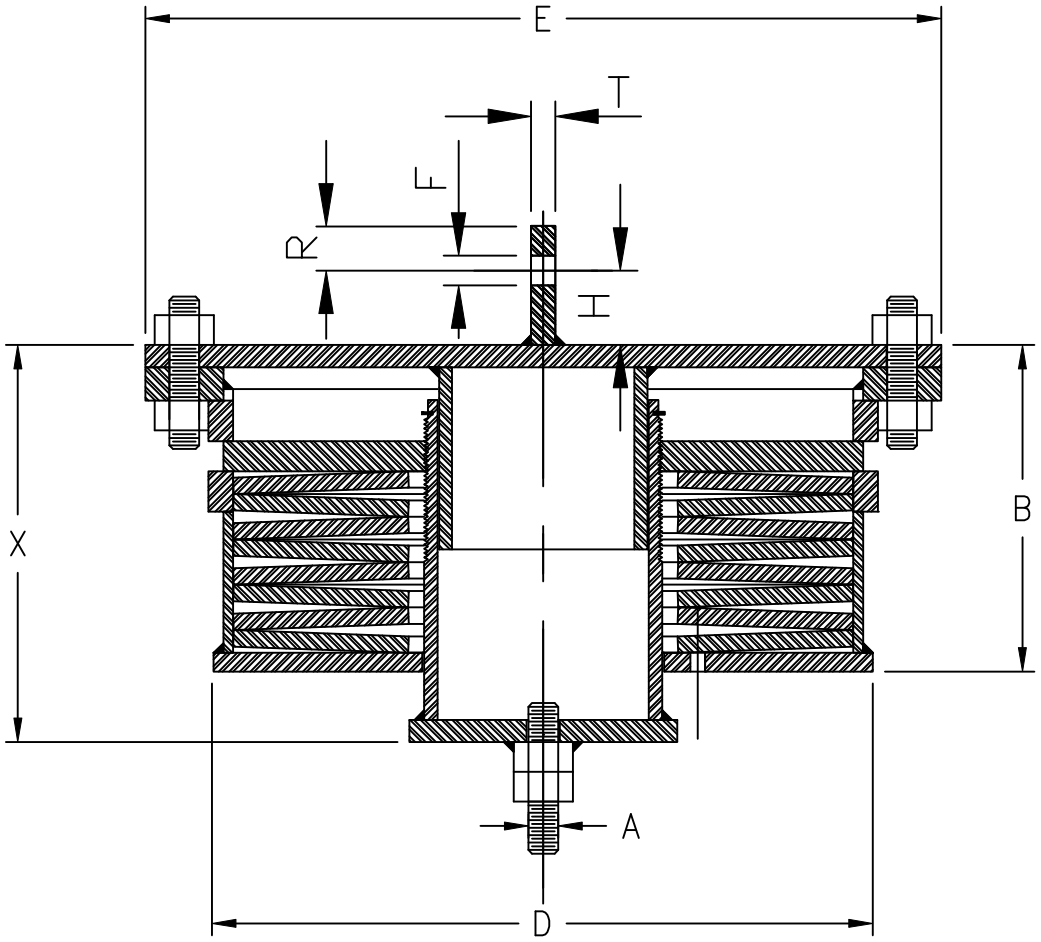
Figure 125 CS Type AT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. E	Length X Min	Length X Max	Wgt lbs. (est.)
1CS	1/2	2	2 3/8	4 3/8	3 1/2	3 11/16	4
2CS	1/2	2	2 3/8	4 3/8	3 9/16	3 3/4	4
3CS	1/2	2	2 7/8	4 7/8	3 9/16	3 3/4	5
4CS	1/2	2	2 3/8	4 3/8	3 9/16	3 3/4	4
5CS	1/2	2	4 1/2	6 1/2	3 9/16	3 3/4	10
6CS	1/2	2 1/16	2 7/8	4 7/8	3 11/16	3 15/16	5
7CS	1/2	2 3/16	4 1/2	6 1/2	3 7/8	4 1/8	11
8CS	1/2	2 5/8	6 5/8	8 5/8	4 1/2	4 7/8	22
9CS	3/4	2 9/16	6 5/8	8 5/8	4 1/2	4 7/8	23
10CS	3/4	2 11/16	8 5/8	10 3/4	4 5/8	5	40
11CS	3/4	2 7/8	8 5/8	9	5 1/8	5 1/2	35
12CS	1	3	8 5/8	9	5 1/4	5 5/8	36
13CS	1	3 9/16	8 5/8	12	6	6 1/2	64
14CS	1 1/4	4 1/4	8 5/8	12	6 13/16	7 9/16	76
15CS	1 1/2	4 11/16	10 3/4	14 3/8	7 5/8	8 3/8	136
16CS	1 1/2	4 11/16	10 3/4	14 1/2	7 11/16	8 7/16	141
17CS	1 3/4	5 3/8	12 3/4	17 3/8	8 11/16	9 7/16	244
18CS	2	6 3/16	14	19	9 11/16	10 11/16	311
19CS	2 1/4	7 1/16	16	21	10 15/16	12 3/16	423
20CS	2 3/4	7 1/2	18	23	11 5/8	12 7/8	538
21CS	2 3/4	8 15/16	20	25	13 5/8	15 1/8	765
22CS	3	10 1/4	24	29	15 11/16	17 7/16	1147

Type AT is designed for supporting from a member by placing a threaded rod in the top turnbuckle and locking the jam nut. Adjustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

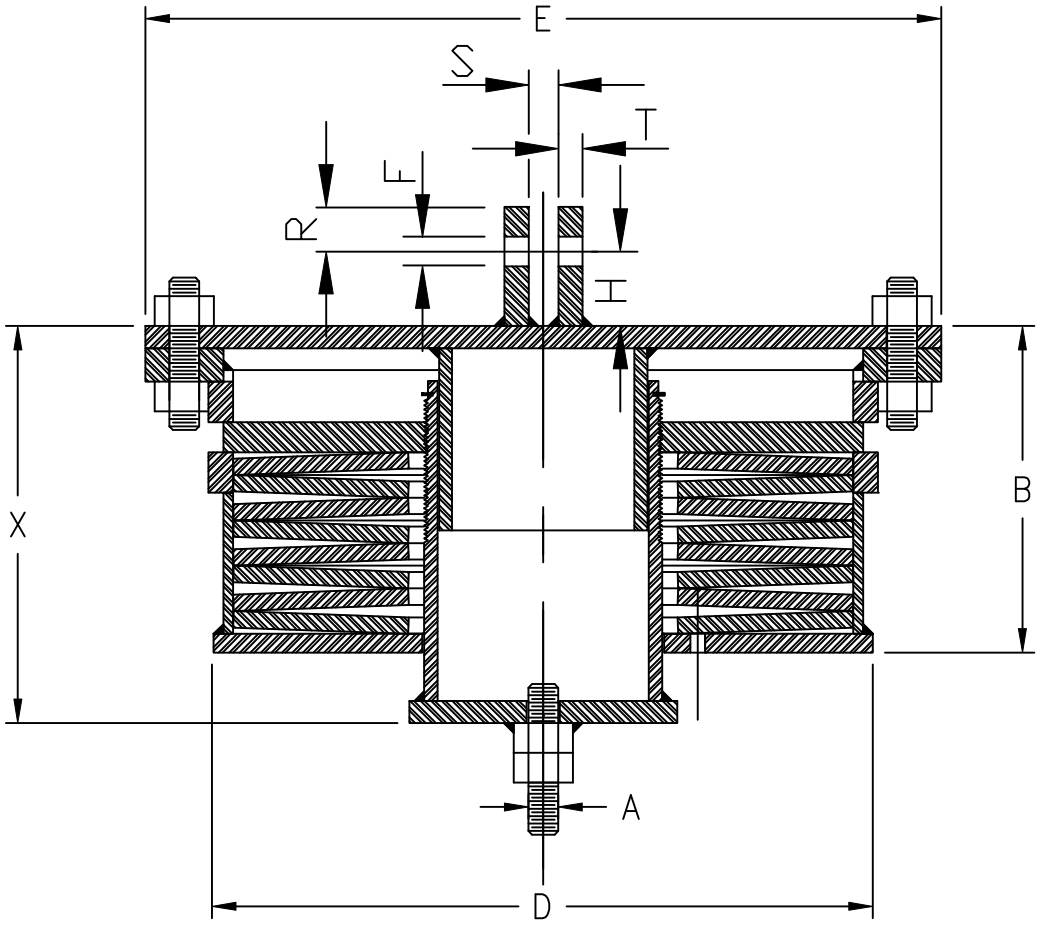
Figure 125 CS Type BT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. D	Flange Diam. E	Length X Min	Length X Max	Lug Thk. T	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1CS	1/2	2	2 3/8	4 3/8	3 1/2	3 11/16	1/4	1 1/4	1 1/2	11/16	4
2CS	1/2	2	2 3/8	4 3/8	3 9/16	3 3/4	1/4	1 1/4	1 1/2	11/16	4
3CS	1/2	2	2 7/8	4 7/8	3 9/16	3 3/4	1/4	1 1/4	1 1/2	11/16	5
4CS	1/2	2	2 3/8	4 3/8	3 9/16	3 3/4	1/4	1 1/4	1 1/2	11/16	4
5CS	1/2	2	4 1/2	6 1/2	3 9/16	3 3/4	1/4	1 1/4	1 1/2	11/16	10
6CS	1/2	2 1/16	2 7/8	4 7/8	3 11/16	3 15/16	1/4	1 1/4	1 1/2	11/16	5
7CS	1/2	2 3/16	4 1/2	6 1/2	3 7/8	4 1/8	1/4	1 1/4	1 1/2	13/16	11
8CS	1/2	2 5/8	6 5/8	8 5/8	4 1/2	4 7/8	1/4	1 1/4	1 1/2	13/16	22
9CS	3/4	2 9/16	6 5/8	8 5/8	4 1/2	4 7/8	3/8	1 1/4	1 1/2	15/16	23
10CS	3/4	2 11/16	8 5/8	10 3/4	4 5/8	5	3/8	1 1/4	1 1/2	15/16	40
11CS	3/4	2 7/8	8 5/8	9	5 1/8	5 1/2	3/8	1 1/4	1 1/2	15/16	35
12CS	1	3	8 5/8	9	5 1/4	5 5/8	1/2	1 1/2	2	1 1/4	36
13CS	1	3 9/16	8 5/8	12	6	6 1/2	1/2	1 1/2	2	1 1/4	64
14CS	1 1/4	4 1/4	8 5/8	12	6 13/16	7 9/16	5/8	2	3	1 1/2	76
15CS	1 1/2	4 11/16	10 3/4	14 3/8	7 5/8	8 3/8	5/8	2	3	1 1/2	136
16CS	1 1/2	4 11/16	10 3/4	14 1/2	7 11/16	8 7/16	3/4	2 1/2	3	1 3/4	141
17CS	1 3/4	5 3/8	12 3/4	17 3/8	8 11/16	9 7/16	3/4	2 1/2	3	2	244
18CS	2	6 3/16	14	19	9 11/16	10 11/16	3/4	3	4	2 3/8	311
19CS	2 1/4	7 1/16	16	21	10 15/16	12 3/16	3/4	3	4 1/2	2 5/8	423
20CS	2 3/4	7 1/2	18	23	11 5/8	12 7/8	1	4	4 1/2	3 1/8	538
21CS	2 3/4	8 15/16	20	25	13 5/8	15 1/8	1	4	4 1/2	3 1/8	765
22CS	3	10 1/4	24	29	15 11/16	17 7/16	1	4	5	3 3/8	1147

Type BT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

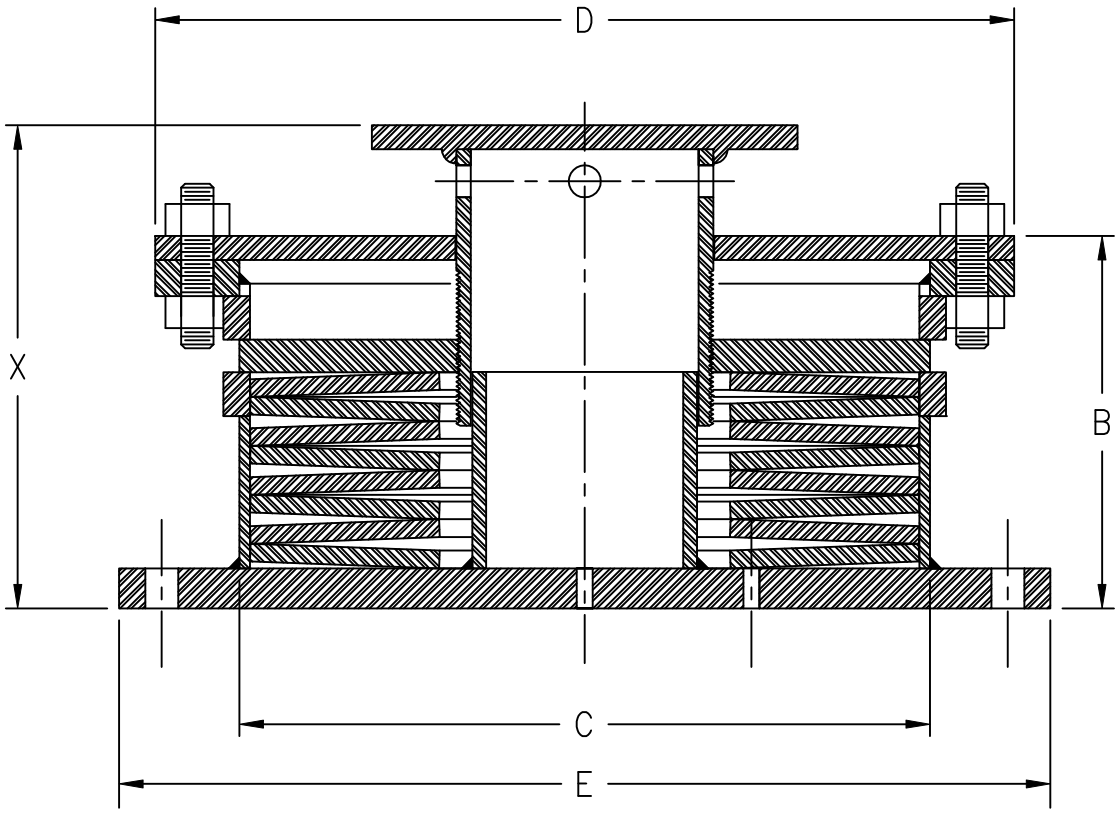
Figure 125 CS Type CT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. D	Length X Min	Length X Max	Lug Thk. T	clevis opening S	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1CS	1/2	2	2 3/8	4 3/8	3 1/2	3 11/16	1/4	7/8	1 1/4	1 1/2	11/16	4
2CS	1/2	2	2 3/8	4 3/8	3 9/16	3 3/4	1/4	7/8	1 1/4	1 1/2	11/16	4
3CS	1/2	2	2 7/8	4 7/8	3 9/16	3 3/4	1/4	7/8	1 1/4	1 1/2	11/16	5
4CS	1/2	2	2 3/8	4 3/8	3 9/16	3 3/4	1/4	7/8	1 1/4	1 1/2	11/16	4
5CS	1/2	2	4 1/2	6 1/2	3 9/16	3 3/4	1/4	7/8	1 1/4	1 1/2	11/16	10
6CS	1/2	2 1/16	2 7/8	4 7/8	3 11/16	3 15/16	1/4	1 1/16	1 1/4	1 1/2	11/16	5
7CS	1/2	2 3/16	4 1/2	6 1/2	3 7/8	4 1/8	1/4	1 1/16	1 1/4	1 1/2	13/16	11
8CS	1/2	2 5/8	6 5/8	8 5/8	4 1/2	4 7/8	1/4	1 1/16	1 1/4	1 1/2	13/16	22
9CS	3/4	2 9/16	6 5/8	8 5/8	4 1/2	4 7/8	3/8	1 1/4	1 1/4	1 1/2	15/16	23
10CS	3/4	2 11/16	8 5/8	10 3/4	4 5/8	5	3/8	1 1/4	1 1/4	1 1/2	15/16	40
11CS	3/4	2 7/8	8 5/8	9	5 1/8	5 1/2	3/8	1 1/4	1 1/4	1 1/2	15/16	35
12CS	1	3	8 5/8	9	5 1/4	5 5/8	1/2	1 5/8	1 1/2	2	1 1/4	36
13CS	1	3 9/16	8 5/8	12	6	6 1/2	1/2	1 5/8	1 1/2	2	1 1/4	64
14CS	1 1/4	4 1/4	8 5/8	12	6 13/16	7 9/16	5/8	2	2	3	1 1/2	76
15CS	1 1/2	4 11/16	10 3/4	14 3/8	7 5/8	8 3/8	5/8	2	2	3	1 1/2	136
16CS	1 1/2	4 11/16	10 3/4	14 1/2	7 11/16	8 7/16	3/4	2 3/8	2 1/2	3	1 3/4	141
17CS	1 3/4	5 3/8	12 3/4	17 3/8	8 11/16	9 7/16	3/4	2 5/8	2 1/2	3	2	244
18CS	2	6 3/16	14	19	9 11/16	10 11/16	3/4	2 7/8	3	4	2 3/8	311
19CS	2 1/4	7 1/16	16	21	10 15/16	12 3/16	3/4	3 1/8	3	4 1/2	2 5/8	423
20CS	2 3/4	7 1/2	18	23	11 5/8	12 7/8	1	3 3/8	4	4 1/2	3 1/8	538
21CS	2 3/4	8 15/16	20	25	13 5/8	15 1/8	1	3 5/8	4	4 1/2	3 1/8	765
22CS	3	10 1/4	24	29	15 11/16	17 7/16	1	3 7/8	4	5	3 3/8	1147

Type CT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

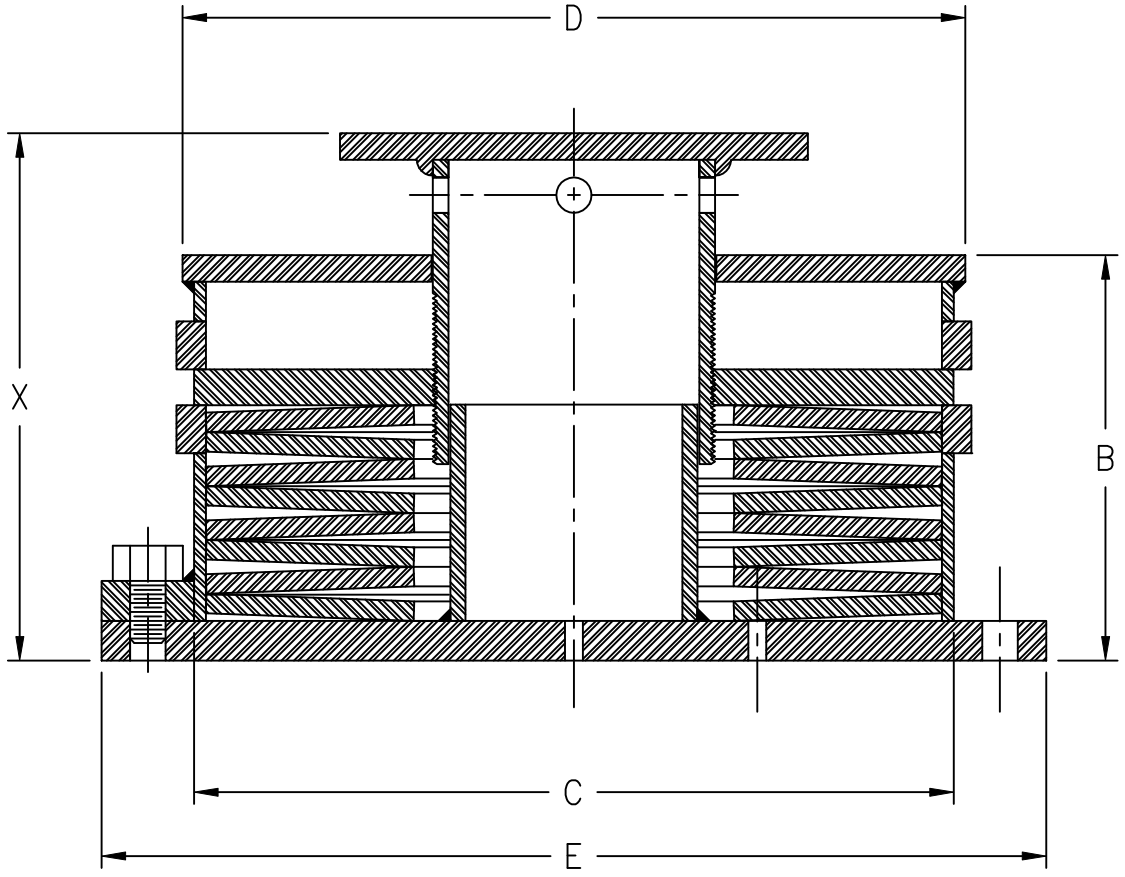
Figure 250 CS Type F



Item SIZE	Casing Length B	Casing Diam. C	Cover Plate Diam. D	Base Plate Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Base Plate Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1CS	3 3/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 1/16	5 7/16	1.0500	2	3/16	5
2CS	3 1/4	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 3/16	5 9/16	1.0500	3 7/8	3/16	5
3CS	3	2 7/8	4 7/8	4 7/8	4	3/8	3/16	5 3/16	5 9/16	1.3150	3 7/8	3/16	7
4CS	3 3/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 1/8	5 1/2	1.0500	3 7/8	3/16	6
5CS	3 3/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/16	5 1/8	5 1/2	1.9000	3 7/8	3/16	13
6CS	3 3/8	2 7/8	4 7/8	4 7/8	4	3/8	1/4	5 5/16	5 3/4	1.3150	3 7/8	3/16	7
7CS	3 5/8	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/8	5 5/8	6 1/16	1.9000	3 7/8	1/4	16
8CS	3 13/16	6 5/8	8 5/8	8 5/8	7 3/4	1/2	3/8	6	6 9/16	3 1/2	3 7/8	3/8	28
9CS	3 13/16	6 5/8	8 5/8	8 5/8	7 3/4	1/2	1/2	5 15/16	6 1/2	2 7/8	3 7/8	1/4	32
10CS	3 7/8	8 5/8	10 3/4	10 3/4	9 7/8	1/2	1/2	6 1/8	6 3/4	4 1/2	5 3/4	3/8	51
11CS	4 3/16	8 5/8	9	9	8	1/2	5/8	6 7/16	7 1/16	4 1/2	6 3/8	3/8	48
12CS	4 3/8	8 5/8	9	9	8	3/4	5/8	6 3/4	7 3/8	4 1/2	6 3/8	3/8	50
13CS	4 15/16	8 5/8	12	12	10 1/2	3/4	3/4	7 1/2	8 1/4	4 1/2	6 3/8	1/2	78
14CS	5 1/8	8 5/8	12	12	10 1/2	3/4	3/4	7 11/16	8 13/16	4 1/2	8 3/8	1/2	87
15CS	5 11/16	10 3/4	14 3/8	14 3/8	12 7/8	3/4	3/4	8 9/16	9 11/16	4 1/2	8 3/8	5/8	143
16CS	5 3/16	10 3/4	14 1/2	14 1/2	13	3/4	3/4	7 7/8	9 1/8	5 9/16	8 3/8	5/8	133
17CS	5 11/16	12 3/4	17 3/8	17 3/8	15 7/16	1	3/4	8 11/16	9 15/16	5 9/16	8 3/8	3/4	211
18CS	6 13/16	14	19	19	17	1	1	10 3/16	11 11/16	5 9/16	8 3/8	1	302
19CS	6 7/16	16	21	21	19	1	1	9 5/8	11 1/4	6 5/8	12 1/2	1	369
20CS	6 7/8	18	23	23	21	1	1	10 13/16	12 5/8	8 5/8	12 1/2	1 1/4	469
21CS	7 15/16	20	25	25	23	1	1	12 5/16	14 3/8	8 5/8	12 1/2	1 1/2	633
22CS	9	24	29	29	27	1	1	13 11/16	16 3/16	10 3/4	12 1/2	1 5/8	915

Type F is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

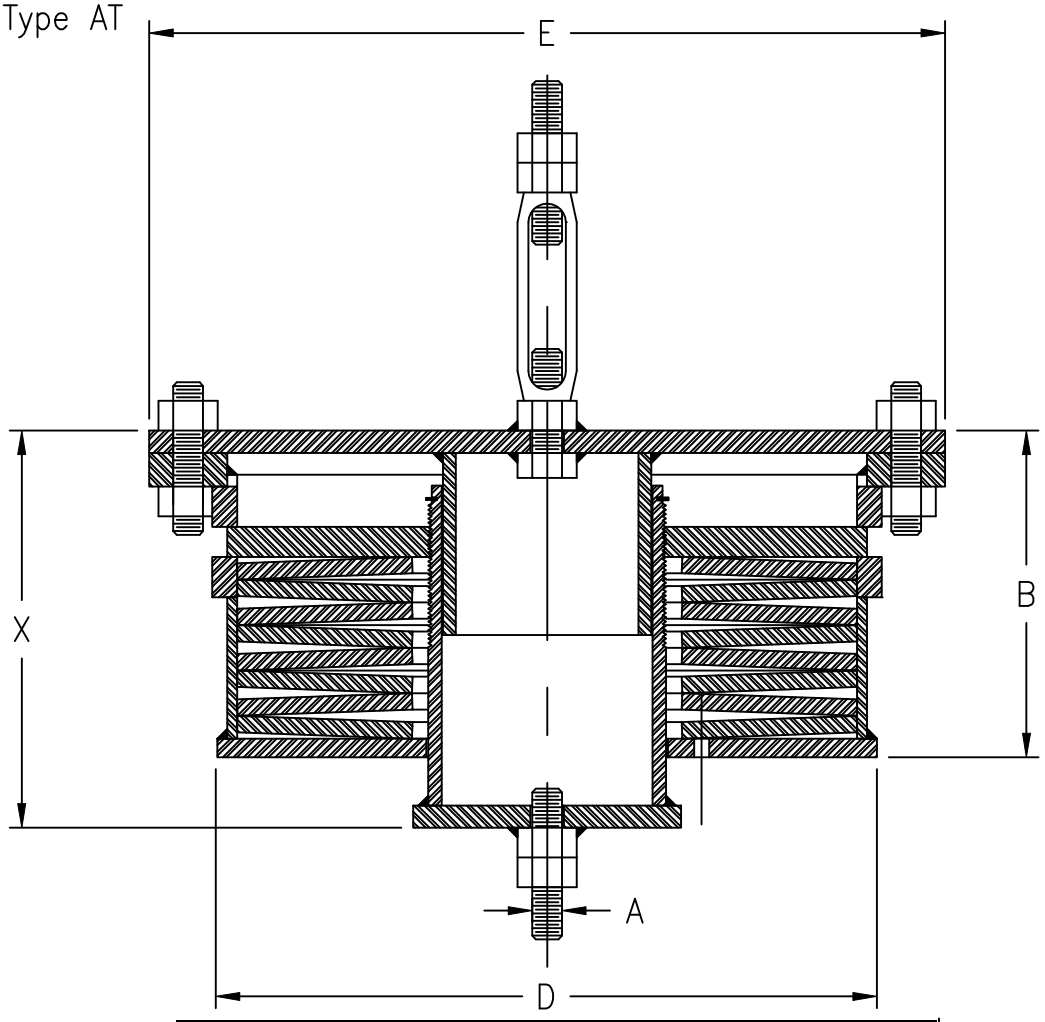
Figure 250 CS Type FW



Item SIZE	Casing Length B	Casing Diam. C	Flange Diam. D	Bottom Flange Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Bottom Flange Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1CS	3 3/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 1/16	5 1/4	1.0500	2	3/16	5
2CS	3 1/4	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 3/16	5 3/8	1.0500	3 7/8	3/16	5
3CS	3	2 7/8	4 7/8	4 7/8	4	3/8	3/16	5 3/16	5 3/8	1.3150	3 7/8	3/16	7
4CS	3 3/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 1/8	5 5/16	1.0500	3 7/8	3/16	6
5CS	3 3/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/16	5 1/8	5 5/16	1.9000	3 7/8	3/16	13
6CS	3 3/8	2 7/8	4 7/8	4 7/8	4	3/8	1/4	5 5/16	5 9/16	1.3150	3 7/8	3/16	7
7CS	3 5/8	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/8	5 5/8	5 7/8	1.9000	3 7/8	1/4	16
8CS	3 13/16	6 5/8	8 5/8	8 5/8	7 3/4	1/2	3/8	6	6 3/8	3 1/2	3 7/8	3/8	28
9CS	3 13/16	6 5/8	8 5/8	8 5/8	7 3/4	1/2	1/2	5 15/16	6 5/16	2 7/8	3 7/8	1/4	32
10CS	3 7/8	8 5/8	10 3/4	10 3/4	9 7/8	1/2	1/2	6 1/16	6 7/16	4 1/2	5 3/4	3/8	51
11CS	4 3/16	8 5/8	9	9	8	1/2	5/8	6 3/8	6 3/4	4 1/2	6 3/8	3/8	48
12CS	4 3/8	8 5/8	9	9	8	3/4	5/8	6 3/4	7 1/8	4 1/2	6 3/8	3/8	50
13CS	4 15/16	8 5/8	12	12	10 1/2	3/4	3/4	7 1/2	8	4 1/2	6 3/8	1/2	78
14CS	5 1/8	8 5/8	12	12	10 1/2	3/4	3/4	7 11/16	8 7/16	4 1/2	8 3/8	1/2	86
15CS	5 11/16	10 3/4	14 3/8	14 3/8	12 7/8	3/4	3/4	8 9/16	9 5/16	4 1/2	8 3/8	5/8	143
16CS	5 3/16	10 3/4	14 1/2	14 1/2	13	3/4	3/4	7 3/4	8 1/2	5 9/16	8 3/8	5/8	133
17CS	5 11/16	12 3/4	17 3/8	17 3/8	15 7/16	1	3/4	8 11/16	9 7/16	5 9/16	8 3/8	3/4	210
18CS	6 13/16	14	19	19	17	1	1	10 3/16	11 3/16	5 9/16	8 3/8	1	301
19CS	6 7/16	16	21	21	19	1	1	9 5/8	10 7/8	6 5/8	12 1/2	1	368
20CS	6 7/8	18	23	23	21	1	1	10 13/16	12 1/16	8 5/8	12 1/2	1 1/4	468
21CS	7 15/16	20	25	25	23	1	1	12 5/16	13 13/16	8 5/8	12 1/2	1 1/2	631
22CS	9	24	29	29	27	1	1	13 11/16	15 7/16	10 3/4	12 1/2	1 5/8	912

Type FW is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

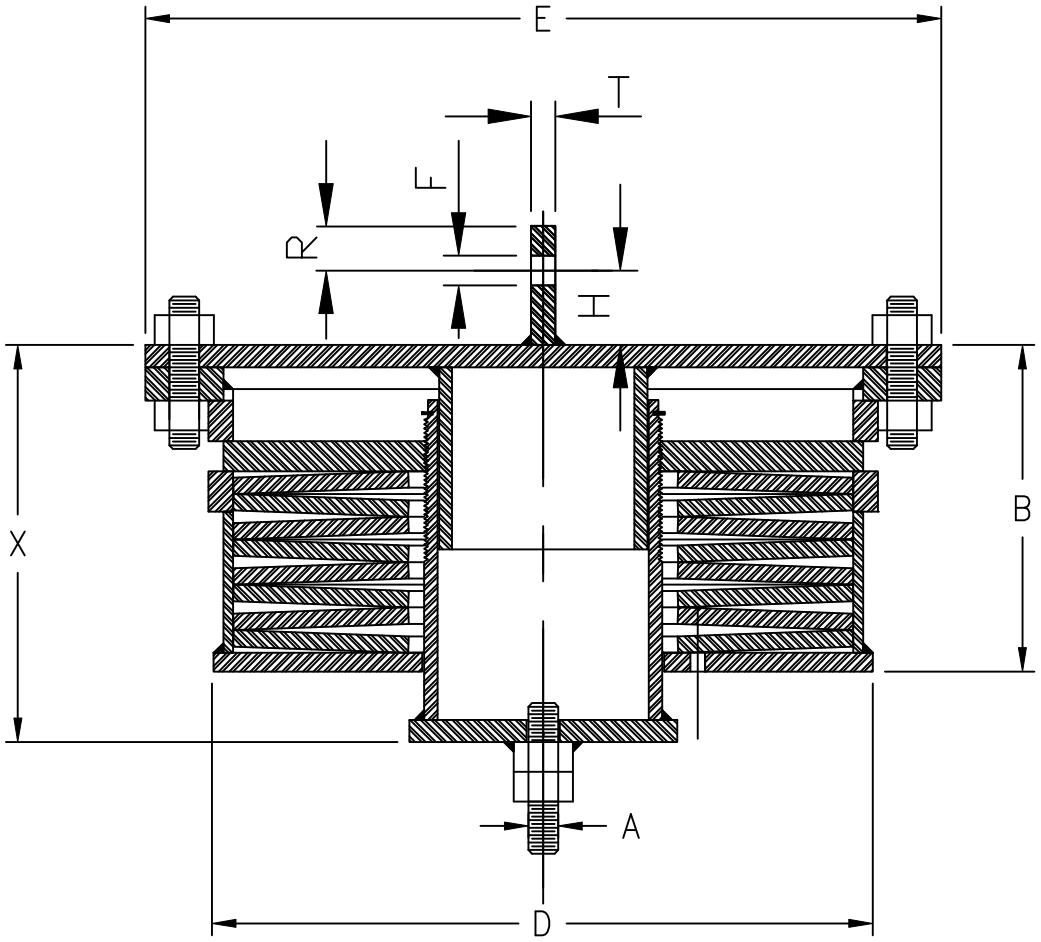
Figure 250 CS Type AT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. E	Length X Min	Length X Max	Wgt lbs. (est.)
1CS	1/2	3 3/16	2 3/8	4 3/8	5 1/16	5 1/4	5
2CS	1/2	3 1/4	2 3/8	4 3/8	5 3/16	5 3/8	5
3CS	1/2	3	2 7/8	4 7/8	5 3/16	5 3/8	7
4CS	1/2	3 3/16	2 3/8	4 3/8	5 1/8	5 5/16	6
5CS	1/2	3 3/16	4 1/2	6 1/2	5 1/8	5 5/16	13
6CS	1/2	3 5/16	2 7/8	4 7/8	5 1/4	5 1/2	7
7CS	1/2	3 1/2	4 1/2	6 1/2	5 1/2	5 3/4	14
8CS	1/2	3 7/8	6 5/8	8 5/8	6 1/8	6 1/2	28
9CS	3/4	3 3/4	6 5/8	8 5/8	6 1/16	6 7/16	29
10CS	3/4	3 7/8	8 5/8	10 3/4	6 3/16	6 9/16	50
11CS	3/4	4 3/16	8 5/8	9	6 3/4	7 1/8	46
12CS	1	4 3/8	8 5/8	9	7	7 3/8	48
13CS	1	5 1/16	8 5/8	12	7 7/8	8 3/8	77
14CS	1 1/4	5 1/4	8 5/8	12	8 3/16	8 15/16	87
15CS	1 1/2	6 3/16	10 3/4	14 3/8	9 9/16	10 5/16	160
16CS	1 1/2	5 11/16	10 3/4	14 1/2	9	9 3/4	158
17CS	1 3/4	6 11/16	12 3/4	17 3/8	10 5/16	11 1/16	275
18CS	2	7 9/16	14	19	11 7/16	12 7/16	353
19CS	2 1/4	7 7/16	16	21	11 5/8	12 7/8	457
20CS	2 3/4	8	18	23	12 9/16	13 13/16	586
21CS	2 3/4	9 7/16	20	25	14 9/16	16 1/16	834
22CS	3	11	24	29	16 15/16	18 11/16	1266

Type AT is designed for supporting from a member by placing a threaded rod in the top turnbuckle and locking the jam nut. Adjustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

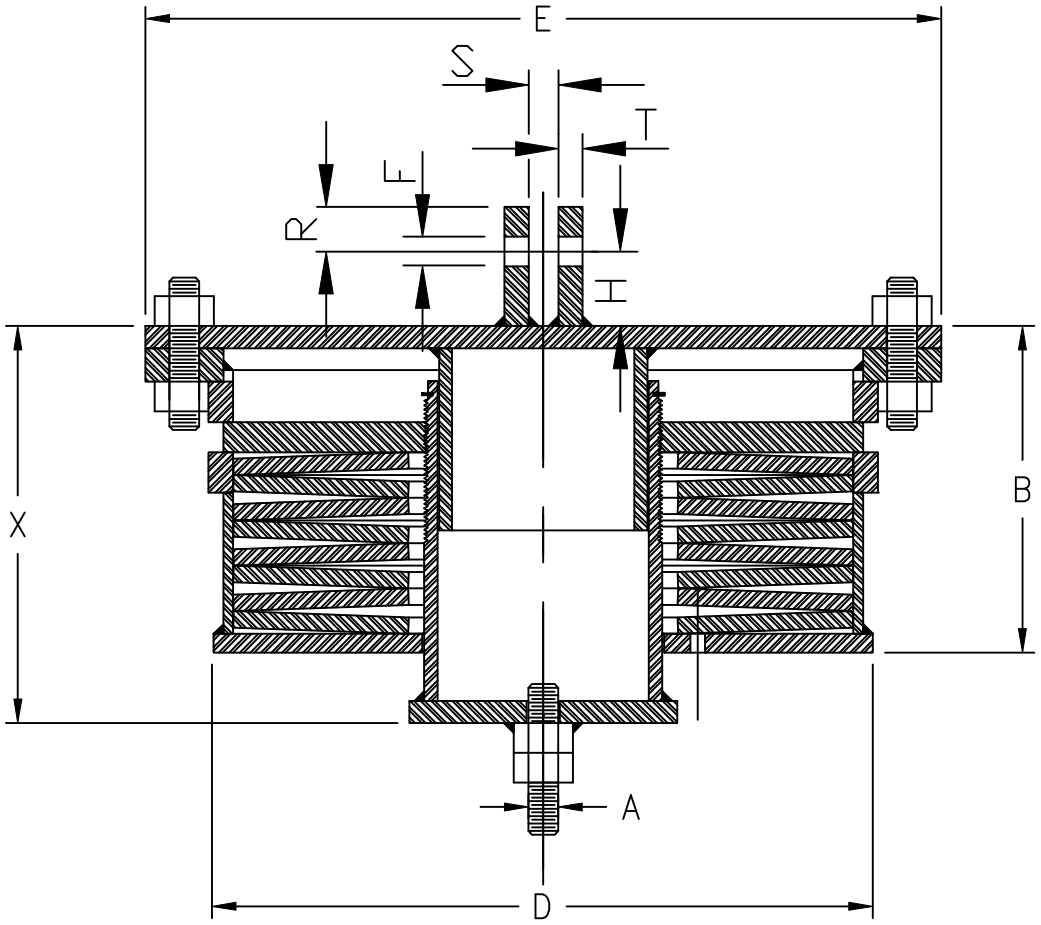
Figure 250 CS Type BT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. D	Flange Diam. E	Length X Min	Length X Max	Lug Thk. T	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1CS	1/2	3 3/16	2 3/8	4 3/8	5 1/16	5 1/4	1/4	1 1/4	1 1/2	11/16	5
2CS	1/2	3 1/4	2 3/8	4 3/8	5 3/16	5 3/8	1/4	1 1/4	1 1/2	11/16	5
3CS	1/2	3	2 7/8	4 7/8	5 3/16	5 3/8	1/4	1 1/4	1 1/2	11/16	7
4CS	1/2	3 3/16	2 3/8	4 3/8	5 1/8	5 5/16	1/4	1 1/4	1 1/2	11/16	6
5CS	1/2	3 3/16	4 1/2	6 1/2	5 1/8	5 5/16	1/4	1 1/4	1 1/2	11/16	13
6CS	1/2	3 5/16	2 7/8	4 7/8	5 1/4	5 1/2	1/4	1 1/4	1 1/2	11/16	7
7CS	1/2	3 1/2	4 1/2	6 1/2	5 1/2	5 3/4	1/4	1 1/4	1 1/2	13/16	14
8CS	1/2	3 7/8	6 5/8	8 5/8	6 1/8	6 1/2	1/4	1 1/4	1 1/2	13/16	28
9CS	3/4	3 3/4	6 5/8	8 5/8	6 1/16	6 7/16	3/8	1 1/4	1 1/2	15/16	29
10CS	3/4	3 7/8	8 5/8	10 3/4	6 3/16	6 9/16	3/8	1 1/4	1 1/2	15/16	50
11CS	3/4	4 3/16	8 5/8	9	6 3/4	7 1/8	3/8	1 1/4	1 1/2	15/16	46
12CS	1	4 3/8	8 5/8	9	7	7 3/8	1/2	1 1/2	2	1 1/4	48
13CS	1	5 1/16	8 5/8	12	7 7/8	8 3/8	1/2	1 1/2	2	1 1/4	77
14CS	1 1/4	5 1/4	8 5/8	12	8 3/16	8 15/16	5/8	2	3	1 1/2	87
15CS	1 1/2	6 3/16	10 3/4	14 3/8	9 9/16	10 5/16	5/8	2	3	1 1/2	160
16CS	1 1/2	5 11/16	10 3/4	14 1/2	9	9 3/4	3/4	2 1/2	3	1 3/4	158
17CS	1 3/4	6 11/16	12 3/4	17 3/8	10 5/16	11 1/16	3/4	2 1/2	3	2	275
18CS	2	7 9/16	14	19	11 7/16	12 7/16	3/4	3	4	2 3/8	353
19CS	2 1/4	7 7/16	16	21	11 5/8	12 7/8	3/4	3	4 1/2	2 5/8	457
20CS	2 3/4	8	18	23	12 9/16	13 13/16	1	4	4 1/2	3 1/8	586
21CS	2 3/4	9 7/16	20	25	14 9/16	16 1/16	1	4	4 1/2	3 1/8	834
22CS	3	11	24	29	16 15/16	18 11/16	1	4	5	3 3/8	1266

Type BT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

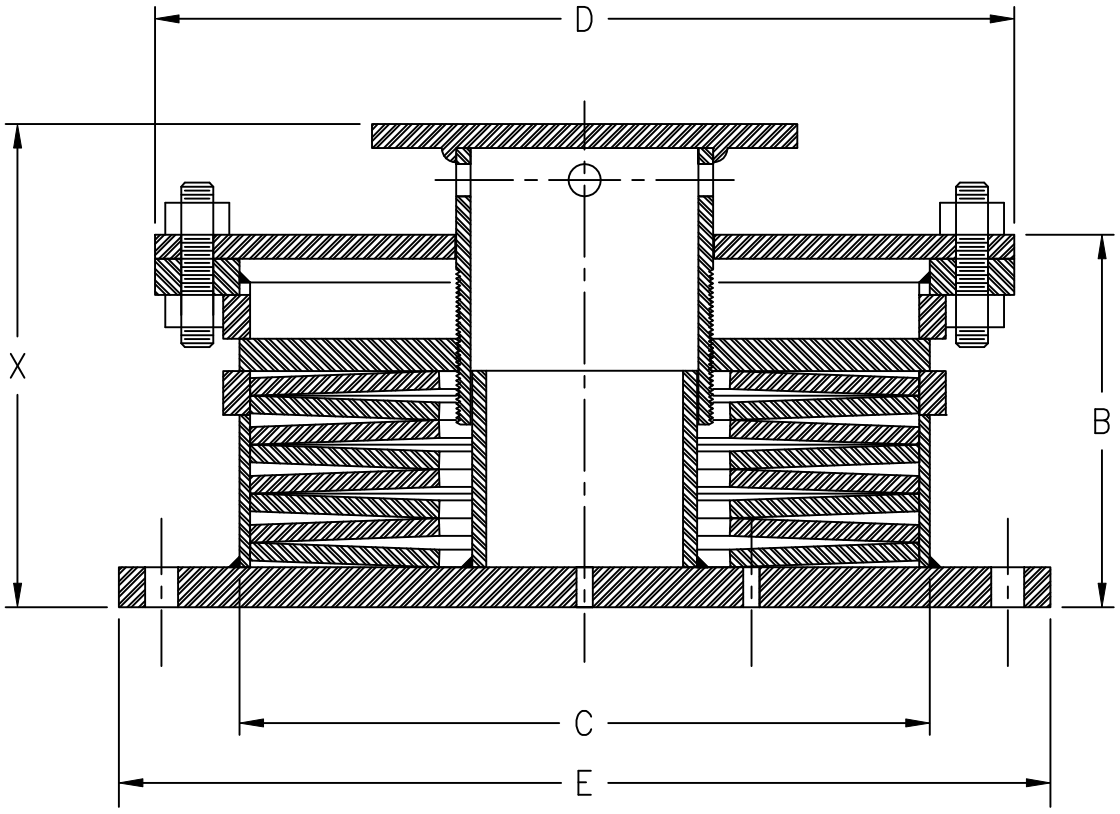
Figure 250 CS Type CT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. D	Length X Min	Length X Max	Lug Thk. T	clevis opening S	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1CS	1/2	3 3/16	2 3/8	4 3/8	5 1/16	5 1/4	1/4	7/8	1 1/4	1 1/2	11/16	5
2CS	1/2	3 1/4	2 3/8	4 3/8	5 3/16	5 3/8	1/4	7/8	1 1/4	1 1/2	11/16	5
3CS	1/2	3	2 7/8	4 7/8	5 3/16	5 3/8	1/4	7/8	1 1/4	1 1/2	11/16	7
4CS	1/2	3 3/16	2 3/8	4 3/8	5 1/8	5 5/16	1/4	7/8	1 1/4	1 1/2	11/16	6
5CS	1/2	3 3/16	4 1/2	6 1/2	5 1/8	5 5/16	1/4	7/8	1 1/4	1 1/2	11/16	13
6CS	1/2	3 5/16	2 7/8	4 7/8	5 1/4	5 1/2	1/4	1 1/16	1 1/4	1 1/2	11/16	7
7CS	1/2	3 1/2	4 1/2	6 1/2	5 1/2	5 3/4	1/4	1 1/16	1 1/4	1 1/2	13/16	14
8CS	1/2	3 7/8	6 5/8	8 5/8	6 1/8	6 1/2	1/4	1 1/16	1 1/4	1 1/2	13/16	28
9CS	3/4	3 3/4	6 5/8	8 5/8	6 1/16	6 7/16	3/8	1 1/4	1 1/4	1 1/2	15/16	29
10CS	3/4	3 7/8	8 5/8	10 3/4	6 3/16	6 9/16	3/8	1 1/4	1 1/4	1 1/2	15/16	50
11CS	3/4	4 3/16	8 5/8	9	6 3/4	7 1/8	3/8	1 1/4	1 1/4	1 1/2	15/16	46
12CS	1	4 3/8	8 5/8	9	7	7 3/8	1/2	1 5/8	1 1/2	2	1 1/4	48
13CS	1	5 1/16	8 5/8	12	7 7/8	8 3/8	1/2	1 5/8	1 1/2	2	1 1/4	77
14CS	1 1/4	5 1/4	8 5/8	12	8 3/16	8 15/16	5/8	2	2	3	1 1/2	87
15CS	1 1/2	6 3/16	10 3/4	14 3/8	9 9/16	10 5/16	5/8	2	2	3	1 1/2	160
16CS	1 1/2	5 11/16	10 3/4	14 1/2	9	9 3/4	3/4	2 3/8	2 1/2	3	1 3/4	158
17CS	1 3/4	6 11/16	12 3/4	17 3/8	10 5/16	11 1/16	3/4	2 5/8	2 1/2	3	2	275
18CS	2	7 9/16	14	19	11 7/16	12 7/16	3/4	2 7/8	3	4	2 3/8	353
19CS	2 1/4	7 7/16	16	21	11 5/8	12 7/8	3/4	3 1/8	3	4 1/2	2 5/8	457
20CS	2 3/4	8	18	23	12 9/16	13 13/16	1	3 3/8	4	4 1/2	3 1/8	586
21CS	2 3/4	9 7/16	20	25	14 9/16	16 1/16	1	3 5/8	4	4 1/2	3 1/8	834
22CS	3	11	24	29	16 15/16	18 11/16	1	3 7/8	4	5	3 3/8	1266

Type CT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

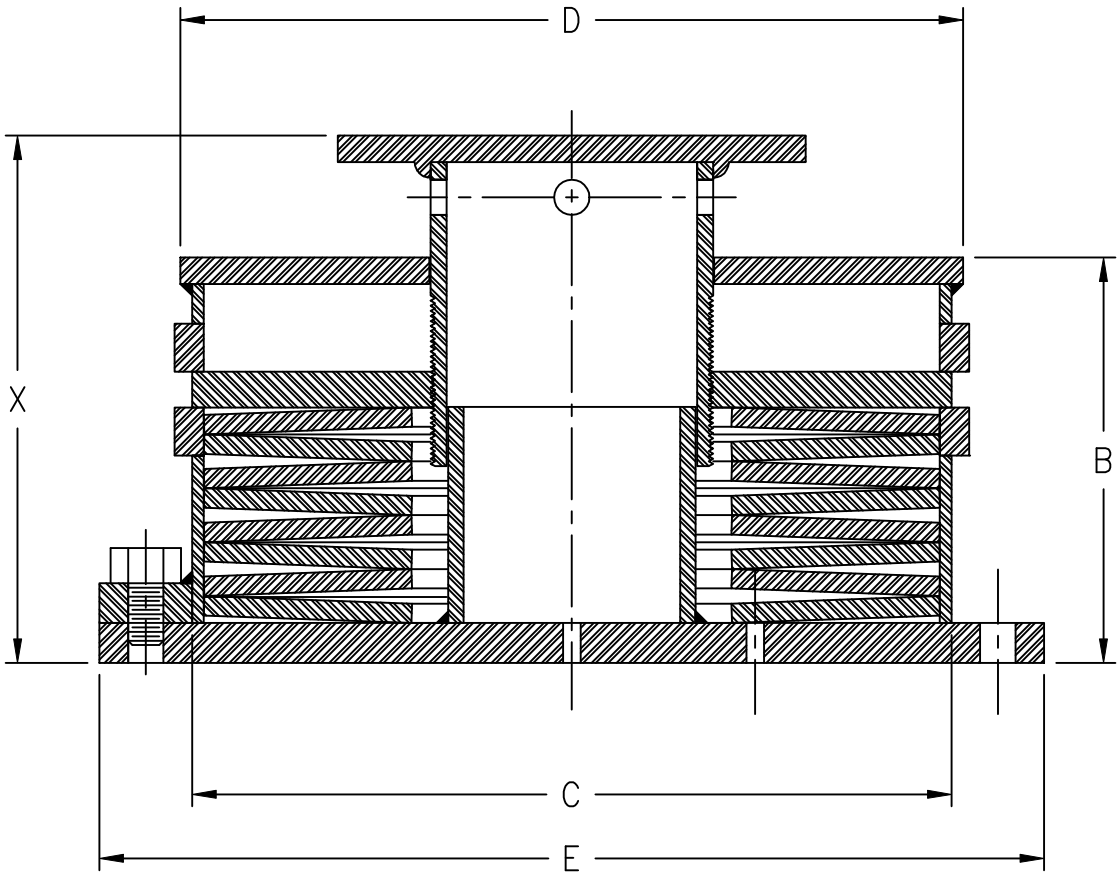
Figure 375 CS Type F



Item SIZE	Casing Length B	Casing Diam. C	Cover Plate Diam. D	Base Plate Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Base Plate Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1CS	4 7/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 5/8	7	1.0500	2	3/16	6
2CS	4 1/2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 3/4	7 1/8	1.0500	3 7/8	3/16	6
3CS	5	2 7/8	4 7/8	4 7/8	4	3/8	3/16	6 3/4	7 1/8	1.3150	3 7/8	3/16	8
4CS	4 7/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 11/16	7 1/16	1.0500	3 7/8	3/16	7
5CS	4 7/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/16	6 3/4	7 1/8	1.9000	3 7/8	3/16	16
6CS	4 9/16	2 7/8	4 7/8	4 7/8	4	3/8	1/4	6 13/16	7 1/4	1.3150	3 7/8	3/16	9
7CS	4 7/8	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/8	7 1/4	7 11/16	1.9000	3 7/8	1/4	19
8CS	5 1/16	6 5/8	8 5/8	8 5/8	7 3/4	1/2	3/8	7 9/16	8 1/8	3 1/2	3 7/8	3/8	34
9CS	5	6 5/8	8 5/8	8 5/8	7 3/4	1/2	1/2	7 7/16	8	2 7/8	3 7/8	1/4	38
10CS	5 1/16	8 5/8	10 3/4	10 3/4	9 7/8	1/2	1/2	7 5/8	8 1/4	4 1/2	5 3/4	3/8	61
11CS	5 7/16	8 5/8	9	9	8	1/2	5/8	8 1/16	8 11/16	4 1/2	6 3/8	3/8	58
12CS	5 11/16	8 5/8	9	9	8	3/4	5/8	8 1/2	9 1/8	4 1/2	6 3/8	3/8	62
13CS	6 3/8	8 5/8	12	12	10 1/2	3/4	3/4	9 3/8	10 1/8	4 1/2	6 3/8	1/2	90
14CS	6 3/8	8 5/8	12	12	10 1/2	3/4	3/4	9 5/16	10 7/16	4 1/2	8 3/8	1/2	97
15CS	7 1/4	10 3/4	14 3/8	14 3/8	12 7/8	3/4	3/4	10 1/2	11 5/8	4 1/2	8 3/8	5/8	166
16CS	6 3/8	10 3/4	14 1/2	14 1/2	13	3/4	3/4	9 7/16	10 11/16	5 9/16	8 3/8	5/8	150
17CS	7 1/8	12 3/4	17 3/8	17 3/8	15 7/16	1	3/4	10 9/16	11 13/16	5 9/16	8 3/8	3/4	242
18CS	8 7/16	14	19	19	17	1	1	12 5/16	13 13/16	5 9/16	8 3/8	1	345
19CS	7 11/16	16	21	21	19	1	1	11 1/4	13	6 5/8	12 1/2	1	407
20CS	8 1/4	18	23	23	21	1	1	12 9/16	14 7/16	8 5/8	12 1/2	1 1/4	522
21CS	9 1/2	20	25	25	23	1	1	14 5/16	16 9/16	8 5/8	12 1/2	1 1/2	709
22CS	10 7/8	24	29	29	27	1	1	16 1/8	18 5/8	10 3/4	12 1/2	1 5/8	1044

Type F is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

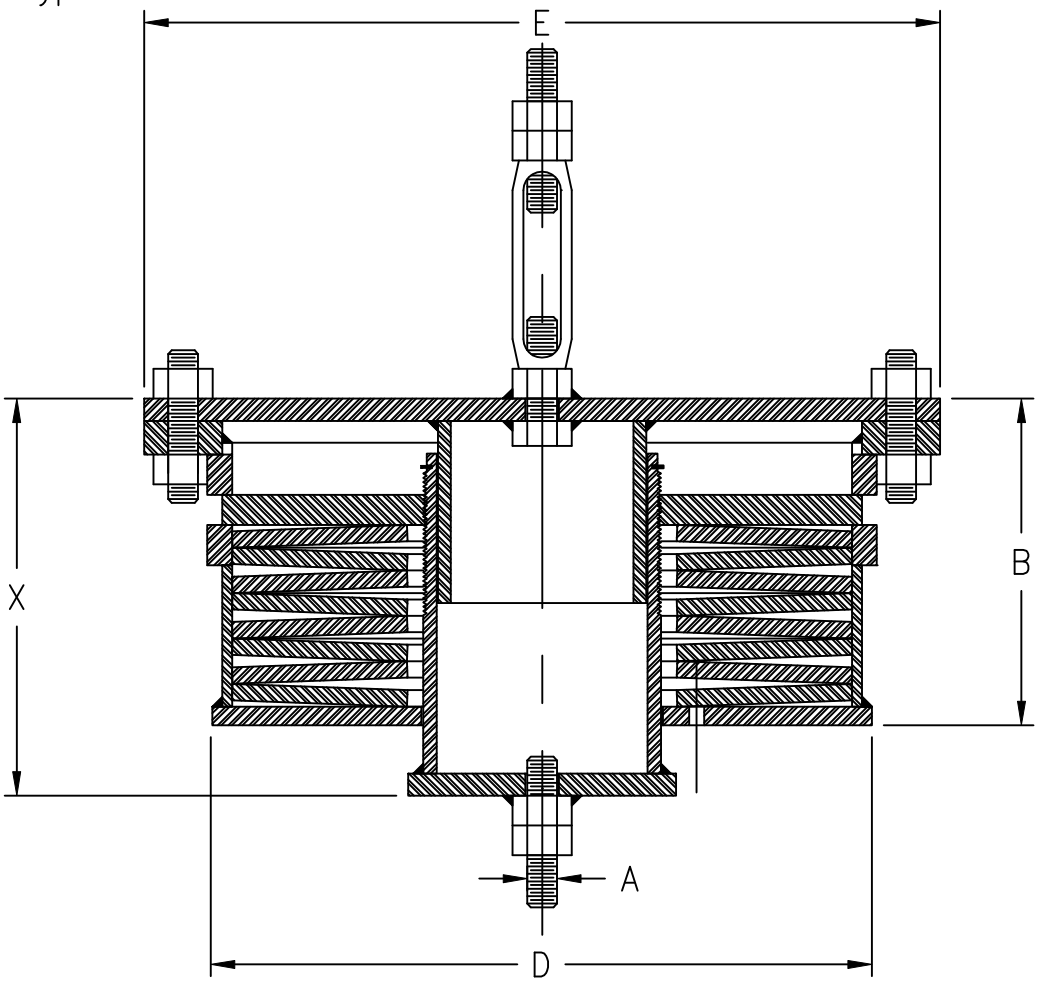
Figure 375 CS Type FW



Item SIZE	Casing Length B	Casing Diam. C	Flange Diam. D	Bottom Flange Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Bottom Flange Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1CS	4 7/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 5/8	6 13/16	1.0500	2	3/16	6
2CS	4 1/2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 3/4	6 15/16	1.0500	3 7/8	3/16	6
3CS	5	2 7/8	4 7/8	4 7/8	4	3/8	3/16	6 3/4	6 15/16	1.3150	3 7/8	3/16	8
4CS	4 7/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 11/16	6 7/8	1.0500	3 7/8	3/16	7
5CS	4 7/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/16	6 3/4	6 15/16	1.9000	3 7/8	3/16	16
6CS	4 9/16	2 7/8	4 7/8	4 7/8	4	3/8	1/4	6 13/16	7 1/16	1.3150	3 7/8	3/16	9
7CS	4 7/8	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/8	7 1/4	7 1/2	1.9000	3 7/8	1/4	19
8CS	5 1/16	6 5/8	8 5/8	8 5/8	7 3/4	1/2	3/8	7 9/16	7 15/16	3 1/2	3 7/8	3/8	34
9CS	5	6 5/8	8 5/8	8 5/8	7 3/4	1/2	1/2	7 7/16	7 13/16	2 7/8	3 7/8	1/4	38
10CS	5 1/16	8 5/8	10 3/4	10 3/4	9 7/8	1/2	1/2	7 9/16	7 15/16	4 1/2	5 3/4	3/8	61
11CS	5 7/16	8 5/8	9	9	8	1/2	5/8	8	8 3/8	4 1/2	6 3/8	3/8	58
12CS	5 11/16	8 5/8	9	9	8	3/4	5/8	8 1/2	8 7/8	4 1/2	6 3/8	3/8	62
13CS	6 3/8	8 5/8	12	12	10 1/2	3/4	3/4	9 3/8	9 7/8	4 1/2	6 3/8	1/2	90
14CS	6 3/8	8 5/8	12	12	10 1/2	3/4	3/4	9 5/16	10 1/16	4 1/2	8 3/8	1/2	97
15CS	7 1/4	10 3/4	14 3/8	14 3/8	12 7/8	3/4	3/4	10 1/2	11 1/4	4 1/2	8 3/8	5/8	166
16CS	6 3/8	10 3/4	14 1/2	14 1/2	13	3/4	3/4	9 5/16	10 1/16	5 9/16	8 3/8	5/8	150
17CS	7 1/8	12 3/4	17 3/8	17 3/8	15 7/16	1	3/4	10 9/16	11 5/16	5 9/16	8 3/8	3/4	242
18CS	8 7/16	14	19	19	17	1	1	12 5/16	13 5/16	5 9/16	8 3/8	1	344
19CS	7 11/16	16	21	21	19	1	1	11 1/4	12 1/2	6 5/8	12 1/2	1	407
20CS	8 1/4	18	23	23	21	1	1	12 9/16	13 13/16	8 5/8	12 1/2	1 1/4	520
21CS	9 1/2	20	25	25	23	1	1	14 5/16	15 13/16	8 5/8	12 1/2	1 1/2	707
22CS	10 7/8	24	29	29	27	1	1	16 1/8	17 7/8	10 3/4	12 1/2	1 5/8	1041

Type FW is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

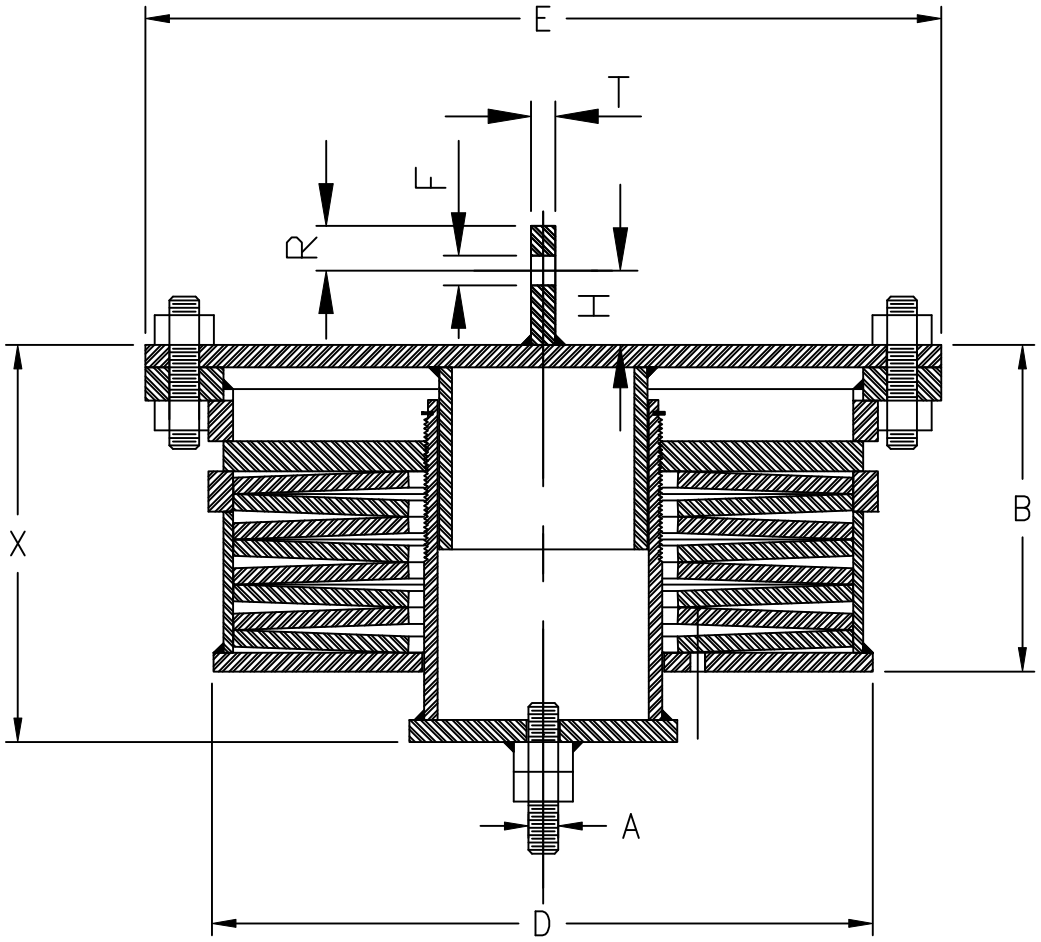
Figure 375 CS Type AT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. E	Length X Min	Length X Max	Wgt lbs. (est.)
1CS	1/2	4 7/16	2 3/8	4 3/8	6 5/8	6 13/16	6
2CS	1/2	4 1/2	2 3/8	4 3/8	6 3/4	6 15/16	6
3CS	1/2	5	2 7/8	4 7/8	6 3/4	6 15/16	8
4CS	1/2	4 7/16	2 3/8	4 3/8	6 11/16	6 7/8	7
5CS	1/2	4 7/16	4 1/2	6 1/2	6 3/4	6 15/16	16
6CS	1/2	4 1/2	2 7/8	4 7/8	6 3/4	7	8
7CS	1/2	4 3/4	4 1/2	6 1/2	7 1/8	7 3/8	17
8CS	1/2	5 1/8	6 5/8	8 5/8	7 11/16	8 1/16	34
9CS	3/4	4 15/16	6 5/8	8 5/8	7 9/16	7 15/16	36
10CS	3/4	5 1/16	8 5/8	10 3/4	7 11/16	8 1/16	60
11CS	3/4	5 7/16	8 5/8	9	8 3/8	8 3/4	57
12CS	1	5 11/16	8 5/8	9	8 3/4	9 1/8	59
13CS	1	6 1/2	8 5/8	12	9 3/4	10 1/4	89
14CS	1 1/4	6 1/2	8 5/8	12	9 13/16	10 9/16	97
15CS	1 1/2	7 3/4	10 3/4	14 3/8	11 1/2	12 1/4	183
16CS	1 1/2	6 7/8	10 3/4	14 1/2	10 9/16	11 5/16	175
17CS	1 3/4	8 1/8	12 3/4	17 3/8	12 3/16	12 15/16	307
18CS	2	9 3/16	14	19	13 9/16	14 9/16	396
19CS	2 1/4	8 11/16	16	21	13 1/4	14 1/2	495
20CS	2 3/4	9 3/8	18	23	14 5/16	15 9/16	638
21CS	2 3/4	11	20	25	16 9/16	18 1/16	910
22CS	3	12 7/8	24	29	19 3/8	21 1/8	1394

Type AT is designed for supporting from a member by placing a threaded rod in the top turnbuckle and locking the jam nut. Adjustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

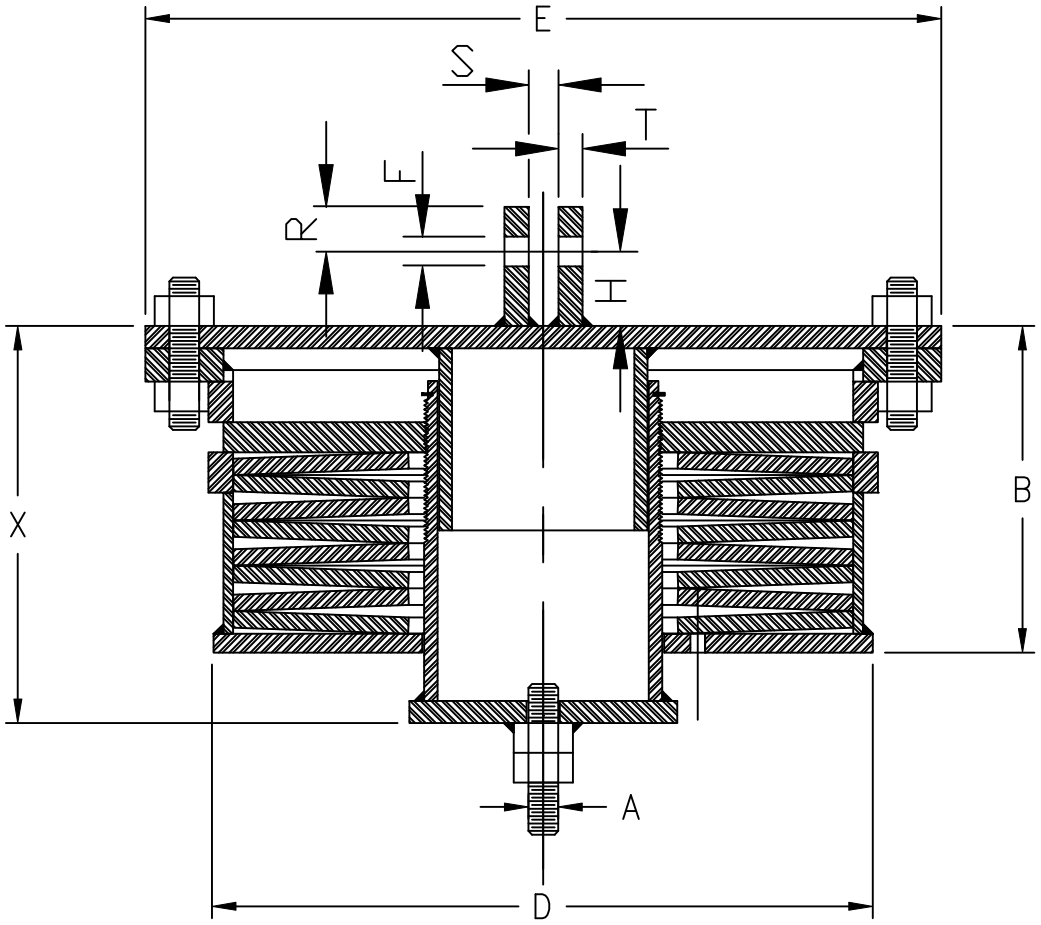
Figure 375 CS Type BT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. D	Flange Diam. E	Length X Min	Length X Max	Lug Thk. T	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1CS	1/2	4 7/16	2 3/8	4 3/8	6 5/8	6 13/16	1/4	1 1/4	1 1/2	11/16	6
2CS	1/2	4 1/2	2 3/8	4 3/8	6 3/4	6 15/16	1/4	1 1/4	1 1/2	11/16	6
3CS	1/2	5	2 7/8	4 7/8	6 3/4	6 15/16	1/4	1 1/4	1 1/2	11/16	8
4CS	1/2	4 7/16	2 3/8	4 3/8	6 11/16	6 7/8	1/4	1 1/4	1 1/2	11/16	7
5CS	1/2	4 7/16	4 1/2	6 1/2	6 3/4	6 15/16	1/4	1 1/4	1 1/2	11/16	16
6CS	1/2	4 1/2	2 7/8	4 7/8	6 3/4	7	1/4	1 1/4	1 1/2	11/16	8
7CS	1/2	4 3/4	4 1/2	6 1/2	7 1/8	7 3/8	1/4	1 1/4	1 1/2	13/16	17
8CS	1/2	5 1/8	6 5/8	8 5/8	7 11/16	8 1/16	1/4	1 1/4	1 1/2	13/16	34
9CS	3/4	4 15/16	6 5/8	8 5/8	7 9/16	7 15/16	3/8	1 1/4	1 1/2	15/16	36
10CS	3/4	5 1/16	8 5/8	10 3/4	7 11/16	8 1/16	3/8	1 1/4	1 1/2	15/16	60
11CS	3/4	5 7/16	8 5/8	9	8 3/8	8 3/4	3/8	1 1/4	1 1/2	15/16	57
12CS	1	5 11/16	8 5/8	9	8 3/4	9 1/8	1/2	1 1/2	2	1 1/4	59
13CS	1	6 1/2	8 5/8	12	9 3/4	10 1/4	1/2	1 1/2	2	1 1/4	89
14CS	1 1/4	6 1/2	8 5/8	12	9 13/16	10 9/16	5/8	2	3	1 1/2	97
15CS	1 1/2	7 3/4	10 3/4	14 3/8	11 1/2	12 1/4	5/8	2	3	1 1/2	183
16CS	1 1/2	6 7/8	10 3/4	14 1/2	10 9/16	11 5/16	3/4	2 1/2	3	1 3/4	175
17CS	1 3/4	8 1/8	12 3/4	17 3/8	12 3/16	12 15/16	3/4	2 1/2	3	2	307
18CS	2	9 3/16	14	19	13 9/16	14 9/16	3/4	3	4	2 3/8	396
19CS	2 1/4	8 11/16	16	21	13 1/4	14 1/2	3/4	3	4 1/2	2 5/8	495
20CS	2 3/4	9 3/8	18	23	14 5/16	15 9/16	1	4	4 1/2	3 1/8	638
21CS	2 3/4	11	20	25	16 9/16	18 1/16	1	4	4 1/2	3 1/8	910
22CS	3	12 7/8	24	29	19 3/8	21 1/8	1	4	5	3 3/8	1394

Type BT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

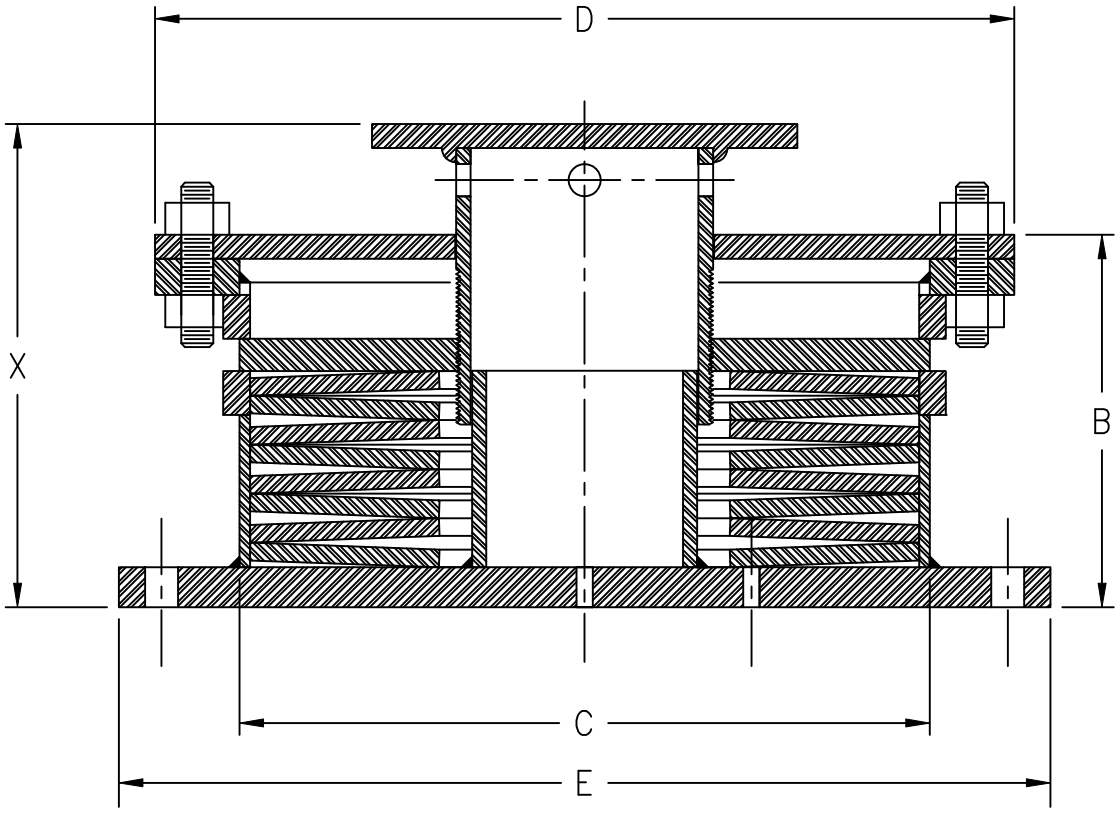
Figure 375 CS Type CT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. D	Length X Min	Length X Max	Lug Thk. T	clevis opening S	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1CS	1/2	4 7/16	2 3/8	4 3/8	6 5/8	6 13/16	1/4	7/8	1 1/4	1 1/2	11/16	6
2CS	1/2	4 1/2	2 3/8	4 3/8	6 3/4	6 15/16	1/4	7/8	1 1/4	1 1/2	11/16	6
3CS	1/2	5	2 7/8	4 7/8	6 3/4	6 15/16	1/4	7/8	1 1/4	1 1/2	11/16	8
4CS	1/2	4 7/16	2 3/8	4 3/8	6 11/16	6 7/8	1/4	7/8	1 1/4	1 1/2	11/16	7
5CS	1/2	4 7/16	4 1/2	6 1/2	6 3/4	6 15/16	1/4	7/8	1 1/4	1 1/2	11/16	16
6CS	1/2	4 1/2	2 7/8	4 7/8	6 3/4	7	1/4	1 1/16	1 1/4	1 1/2	11/16	8
7CS	1/2	4 3/4	4 1/2	6 1/2	7 1/8	7 3/8	1/4	1 1/16	1 1/4	1 1/2	13/16	17
8CS	1/2	5 1/8	6 5/8	8 5/8	7 11/16	8 1/16	1/4	1 1/16	1 1/4	1 1/2	13/16	34
9CS	3/4	4 15/16	6 5/8	8 5/8	7 9/16	7 15/16	3/8	1 1/4	1 1/4	1 1/2	15/16	36
10CS	3/4	5 1/16	8 5/8	10 3/4	7 11/16	8 1/16	3/8	1 1/4	1 1/4	1 1/2	15/16	60
11CS	3/4	5 7/16	8 5/8	9	8 3/8	8 3/4	3/8	1 1/4	1 1/4	1 1/2	15/16	57
12CS	1	5 11/16	8 5/8	9	8 3/4	9 1/8	1/2	1 5/8	1 1/2	2	1 1/4	59
13CS	1	6 1/2	8 5/8	12	9 3/4	10 1/4	1/2	1 5/8	1 1/2	2	1 1/4	89
14CS	1 1/4	6 1/2	8 5/8	12	9 13/16	10 9/16	5/8	2	2	3	1 1/2	97
15CS	1 1/2	7 3/4	10 3/4	14 3/8	11 1/2	12 1/4	5/8	2	2	3	1 1/2	183
16CS	1 1/2	6 7/8	10 3/4	14 1/2	10 9/16	11 5/16	3/4	2 3/8	2 1/2	3	1 3/4	175
17CS	1 3/4	8 1/8	12 3/4	17 3/8	12 3/16	12 15/16	3/4	2 5/8	2 1/2	3	2	307
18CS	2	9 3/16	14	19	13 9/16	14 9/16	3/4	2 7/8	3	4	2 3/8	396
19CS	2 1/4	8 11/16	16	21	13 1/4	14 1/2	3/4	3 1/8	3	4 1/2	2 5/8	495
20CS	2 3/4	9 3/8	18	23	14 5/16	15 9/16	1	3 3/8	4	4 1/2	3 1/8	638
21CS	2 3/4	11	20	25	16 9/16	18 1/16	1	3 5/8	4	4 1/2	3 1/8	910
22CS	3	12 7/8	24	29	19 3/8	21 1/8	1	3 7/8	4	5	3 3/8	1394

Type CT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

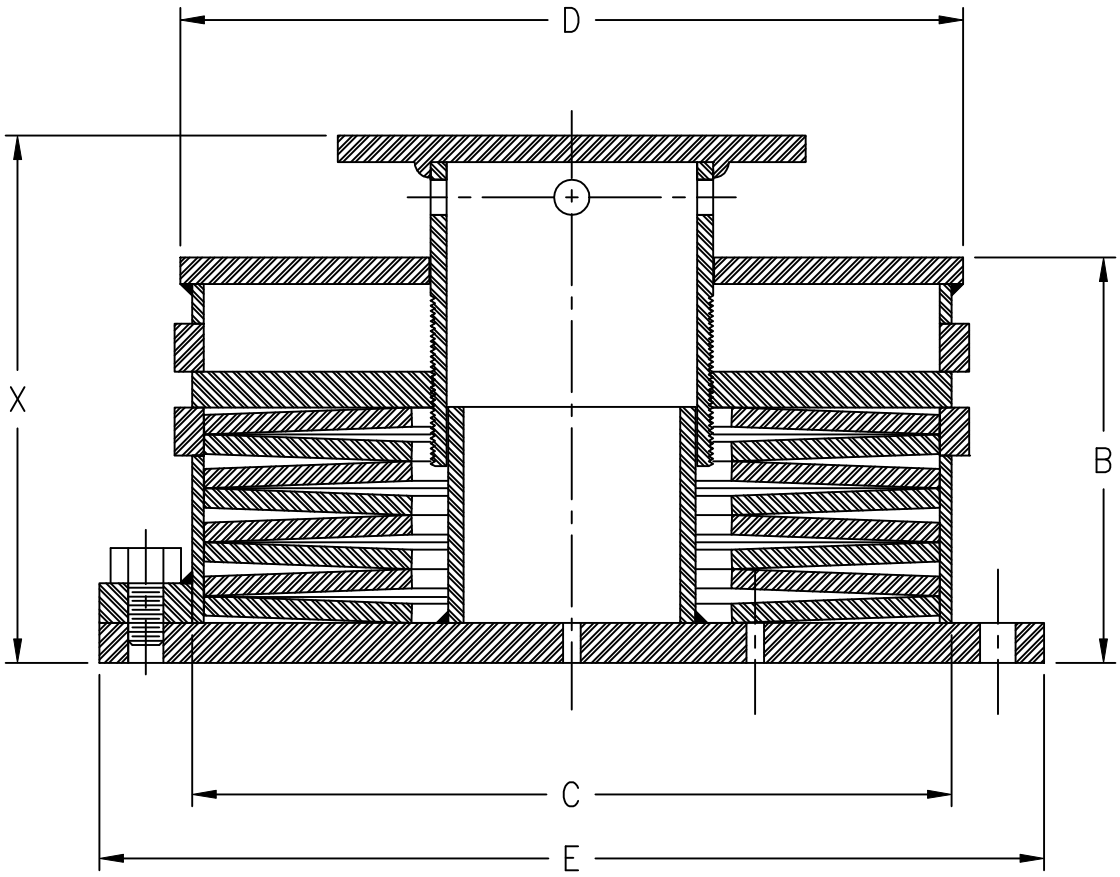
Figure 500 CS Type F



Item SIZE	Casing Length B	Casing Diam. C	Cover Plate Diam. D	Base Plate Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Base Plate Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1CS	5 5/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 3/16	8 9/16	1.0500	2	3/16	7
2CS	5 3/4	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 3/8	8 3/4	1.0500	3 7/8	3/16	7
3CS	6	2 7/8	4 7/8	4 7/8	4	3/8	3/16	8 3/8	8 3/4	1.3150	3 7/8	3/16	10
4CS	5 5/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 1/4	8 5/8	1.0500	3 7/8	3/16	8
5CS	5 11/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/16	8 5/16	8 11/16	1.9000	3 7/8	3/16	19
6CS	5 13/16	2 7/8	4 7/8	4 7/8	4	3/8	1/4	8 3/8	8 13/16	1.3150	3 7/8	3/16	10
7CS	6 1/8	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/8	8 7/8	9 5/16	1.9000	3 7/8	1/4	23
8CS	6 3/8	6 5/8	8 5/8	8 5/8	7 3/4	1/2	3/8	9 3/16	9 3/4	3 1/2	3 7/8	3/8	40
9CS	6 1/4	6 5/8	8 5/8	8 5/8	7 3/4	1/2	1/2	9	9 9/16	2 7/8	3 7/8	1/4	45
10CS	6 1/4	8 5/8	10 3/4	10 3/4	9 7/8	1/2	1/2	9 1/8	9 3/4	4 1/2	5 3/4	3/8	71
11CS	6 3/4	8 5/8	9	9	8	1/2	5/8	9 11/16	10 5/16	4 1/2	6 3/8	3/8	69
12CS	7 1/16	8 5/8	9	9	8	3/4	5/8	10 1/4	10 7/8	4 1/2	6 3/8	3/8	73
13CS	7 7/8	8 5/8	12	12	10 1/2	3/4	3/4	11 1/4	12	4 1/2	6 3/8	1/2	103
14CS	7 5/8	8 5/8	12	12	10 1/2	3/4	3/4	10 7/8	12	4 1/2	8 3/8	1/2	108
15CS	8 13/16	10 3/4	14 3/8	14 3/8	12 7/8	3/4	3/4	12 1/2	13 5/8	4 1/2	8 3/8	5/8	190
16CS	7 5/8	10 3/4	14 1/2	14 1/2	13	3/4	3/4	11	12 1/4	5 9/16	8 3/8	5/8	168
17CS	8 9/16	12 3/4	17 3/8	17 3/8	15 7/16	1	3/4	12 7/16	13 11/16	5 9/16	8 3/8	3/4	274
18CS	10 1/16	14	19	19	17	1	1	14 7/16	15 15/16	5 9/16	8 3/8	1	388
19CS	8 15/16	16	21	21	19	1	1	12 13/16	14 9/16	6 5/8	12 1/2	1	446
20CS	9 11/16	18	23	23	21	1	1	14 5/16	16 3/16	8 5/8	12 1/2	1 1/4	574
21CS	11 1/16	20	25	25	23	1	1	16 3/8	18 5/8	8 5/8	12 1/2	1 1/2	785
22CS	12 13/16	24	29	29	27	1	1	18 1/2	21	10 3/4	12 1/2	1 5/8	1172

Type F is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

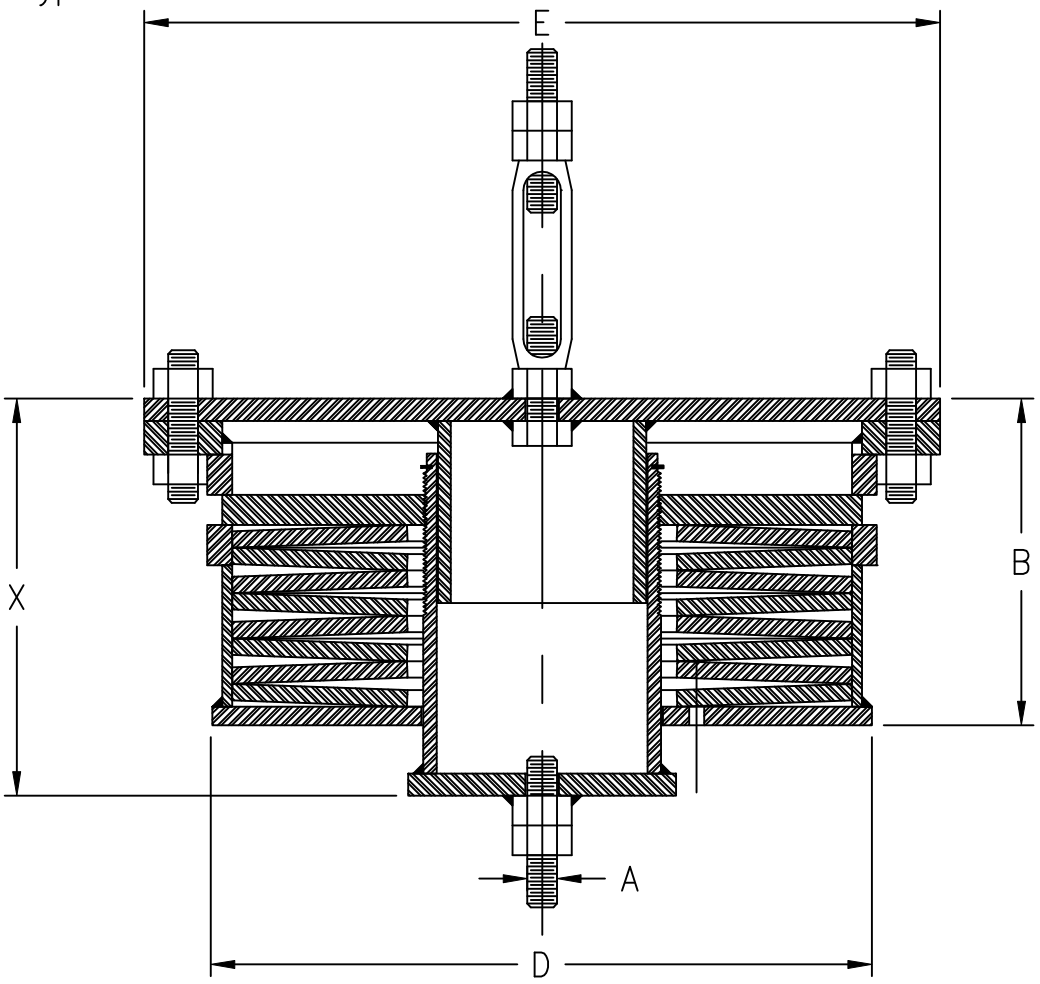
Figure 500 CS Type FW



Item SIZE	Casing Length B	Casing Diam. C	Flange Diam. D	Bottom Flange Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Bottom Flange Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1CS	5 5/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 3/16	8 3/8	1.0500	2	3/16	7
2CS	5 3/4	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 3/8	8 9/16	1.0500	3 7/8	3/16	7
3CS	6	2 7/8	4 7/8	4 7/8	4	3/8	3/16	8 3/8	8 9/16	1.3150	3 7/8	3/16	10
4CS	5 5/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 1/4	8 7/16	1.0500	3 7/8	3/16	8
5CS	5 11/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/16	8 5/16	8 1/2	1.9000	3 7/8	3/16	19
6CS	5 13/16	2 7/8	4 7/8	4 7/8	4	3/8	1/4	8 3/8	8 5/8	1.3150	3 7/8	3/16	10
7CS	6 1/8	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/8	8 7/8	9 1/8	1.9000	3 7/8	1/4	22
8CS	6 3/8	6 5/8	8 5/8	8 5/8	7 3/4	1/2	3/8	9 3/16	9 9/16	3 1/2	3 7/8	3/8	40
9CS	6 1/4	6 5/8	8 5/8	8 5/8	7 3/4	1/2	1/2	9	9 3/8	2 7/8	3 7/8	1/4	45
10CS	6 1/4	8 5/8	10 3/4	10 3/4	9 7/8	1/2	1/2	9 1/16	9 7/16	4 1/2	5 3/4	3/8	71
11CS	6 3/4	8 5/8	9	9	8	1/2	5/8	9 5/8	10	4 1/2	6 3/8	3/8	69
12CS	7 1/16	8 5/8	9	9	8	3/4	5/8	10 1/4	10 5/8	4 1/2	6 3/8	3/8	73
13CS	7 7/8	8 5/8	12	12	10 1/2	3/4	3/4	11 1/4	11 3/4	4 1/2	6 3/8	1/2	103
14CS	7 5/8	8 5/8	12	12	10 1/2	3/4	3/4	10 7/8	11 5/8	4 1/2	8 3/8	1/2	108
15CS	8 13/16	10 3/4	14 3/8	14 3/8	12 7/8	3/4	3/4	12 1/2	13 1/4	4 1/2	8 3/8	5/8	190
16CS	7 5/8	10 3/4	14 1/2	14 1/2	13	3/4	3/4	10 7/8	11 5/8	5 9/16	8 3/8	5/8	168
17CS	8 9/16	12 3/4	17 3/8	17 3/8	15 7/16	1	3/4	12 7/16	13 3/16	5 9/16	8 3/8	3/4	273
18CS	10 1/16	14	19	19	17	1	1	14 7/16	15 7/16	5 9/16	8 3/8	1	387
19CS	8 15/16	16	21	21	19	1	1	12 13/16	14 1/16	6 5/8	12 1/2	1	445
20CS	9 11/16	18	23	23	21	1	1	14 5/16	15 9/16	8 5/8	12 1/2	1 1/4	573
21CS	11 1/16	20	25	25	23	1	1	16 3/8	17 7/8	8 5/8	12 1/2	1 1/2	783
22CS	12 13/16	24	29	29	27	1	1	18 1/2	20 1/4	10 3/4	12 1/2	1 5/8	1169

Type FW is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

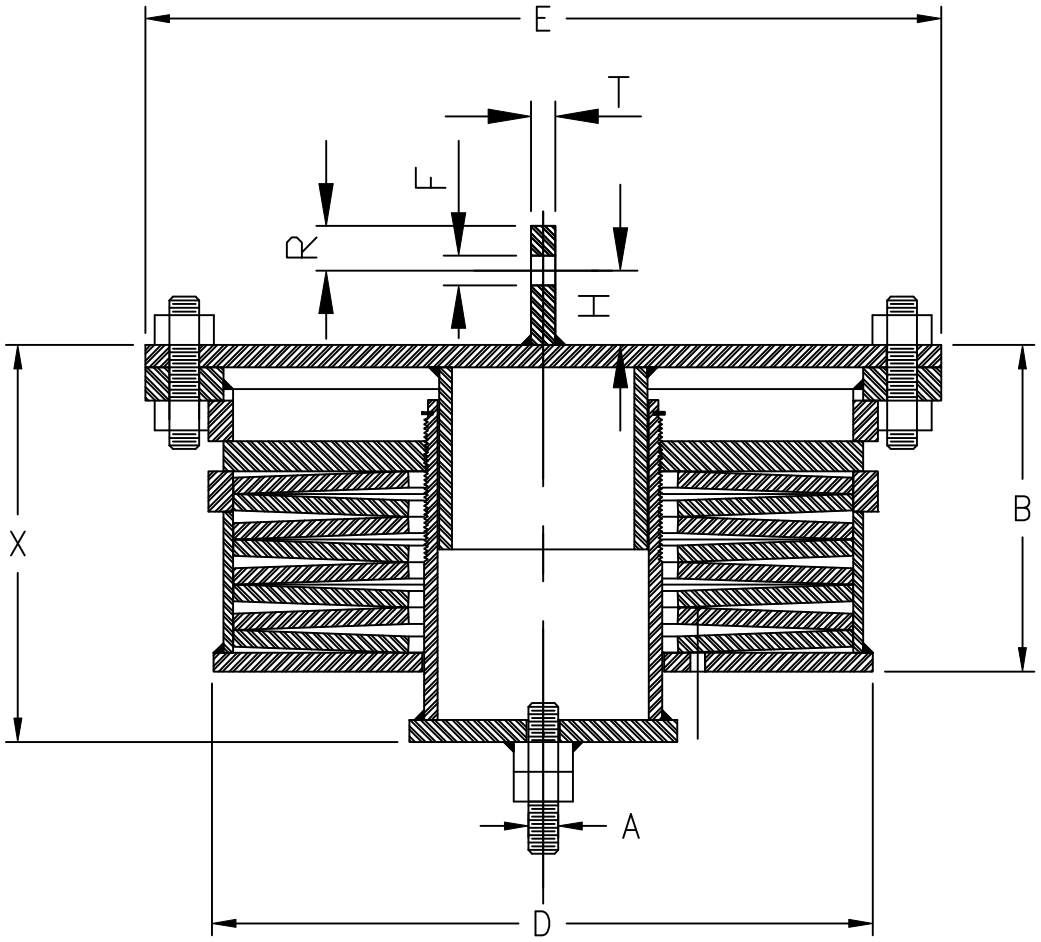
Figure 500 CS Type AT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. E	Length X Min	Length X Max	Wgt lbs. (est.)
1CS	1/2	5 5/8	2 3/8	4 3/8	8 3/16	8 3/8	7
2CS	1/2	5 3/4	2 3/8	4 3/8	8 3/8	8 9/16	7
3CS	1/2	6	2 7/8	4 7/8	8 3/8	8 9/16	10
4CS	1/2	5 5/8	2 3/8	4 3/8	8 1/4	8 7/16	8
5CS	1/2	5 11/16	4 1/2	6 1/2	8 5/16	8 1/2	19
6CS	1/2	5 3/4	2 7/8	4 7/8	8 5/16	8 9/16	10
7CS	1/2	6	4 1/2	6 1/2	8 3/4	9	21
8CS	1/2	6 7/16	6 5/8	8 5/8	9 5/16	9 11/16	40
9CS	3/4	6 3/16	6 5/8	8 5/8	9 1/8	9 1/2	42
10CS	3/4	6 1/4	8 5/8	10 3/4	9 3/16	9 9/16	70
11CS	3/4	6 3/4	8 5/8	9	10	10 3/8	68
12CS	1	7 1/16	8 5/8	9	10 1/2	10 7/8	71
13CS	1	8	8 5/8	12	11 5/8	12 1/8	102
14CS	1 1/4	7 3/4	8 5/8	12	11 3/8	12 1/8	108
15CS	1 1/2	9 5/16	10 3/4	14 3/8	13 1/2	14 1/4	207
16CS	1 1/2	8 1/8	10 3/4	14 1/2	12 1/8	12 7/8	193
17CS	1 3/4	9 9/16	12 3/4	17 3/8	14 1/16	14 13/16	338
18CS	2	10 13/16	14	19	15 11/16	16 11/16	439
19CS	2 1/4	9 15/16	16	21	14 13/16	16 1/16	534
20CS	2 3/4	10 13/16	18	23	16 1/16	17 5/16	690
21CS	2 3/4	12 9/16	20	25	18 5/8	20 1/8	986
22CS	3	14 13/16	24	29	21 3/4	23 1/2	1523

Type AT is designed for supporting from a member by placing a threaded rod in the top turnbuckle and locking the jam nut. Adjustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

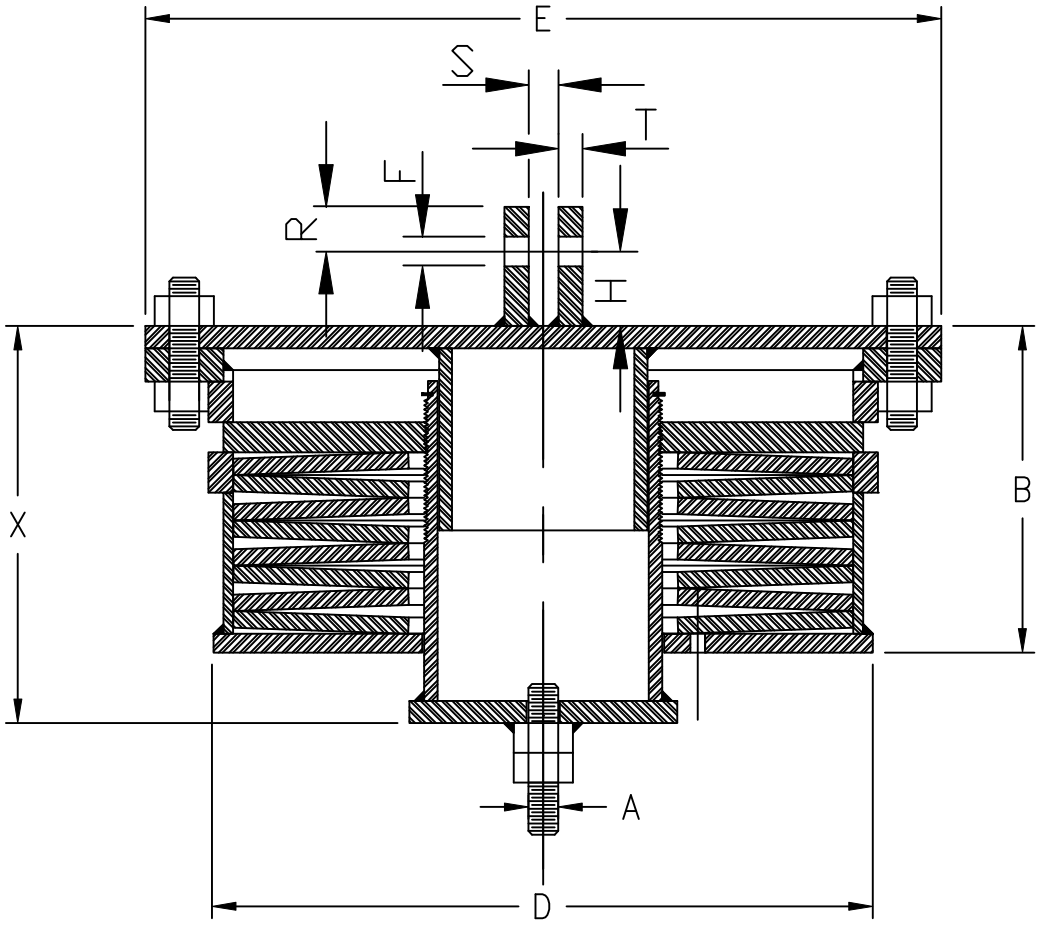
Figure 500 CS Type BT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. D	Flange Diam. E	Length X Min	Length X Max	Lug Thk. T	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1CS	1/2	5 5/8	2 3/8	4 3/8	8 3/16	8 3/8	1/4	1 1/4	1 1/2	11/16	7
2CS	1/2	5 3/4	2 3/8	4 3/8	8 3/8	8 9/16	1/4	1 1/4	1 1/2	11/16	7
3CS	1/2	6	2 7/8	4 7/8	8 3/8	8 9/16	1/4	1 1/4	1 1/2	11/16	10
4CS	1/2	5 5/8	2 3/8	4 3/8	8 1/4	8 7/16	1/4	1 1/4	1 1/2	11/16	8
5CS	1/2	5 11/16	4 1/2	6 1/2	8 5/16	8 1/2	1/4	1 1/4	1 1/2	11/16	19
6CS	1/2	5 3/4	2 7/8	4 7/8	8 5/16	8 9/16	1/4	1 1/4	1 1/2	11/16	10
7CS	1/2	6	4 1/2	6 1/2	8 3/4	9	1/4	1 1/4	1 1/2	13/16	21
8CS	1/2	6 7/16	6 5/8	8 5/8	9 5/16	9 11/16	1/4	1 1/4	1 1/2	13/16	40
9CS	3/4	6 3/16	6 5/8	8 5/8	9 1/8	9 1/2	3/8	1 1/4	1 1/2	15/16	42
10CS	3/4	6 1/4	8 5/8	10 3/4	9 3/16	9 9/16	3/8	1 1/4	1 1/2	15/16	70
11CS	3/4	6 3/4	8 5/8	9	10	10 3/8	3/8	1 1/4	1 1/2	15/16	68
12CS	1	7 1/16	8 5/8	9	10 1/2	10 7/8	1/2	1 1/2	2	1 1/4	71
13CS	1	8	8 5/8	12	11 5/8	12 1/8	1/2	1 1/2	2	1 1/4	102
14CS	1 1/4	7 3/4	8 5/8	12	11 3/8	12 1/8	5/8	2	3	1 1/2	108
15CS	1 1/2	9 5/16	10 3/4	14 3/8	13 1/2	14 1/4	5/8	2	3	1 1/2	207
16CS	1 1/2	8 1/8	10 3/4	14 1/2	12 1/8	12 7/8	3/4	2 1/2	3	1 3/4	193
17CS	1 3/4	9 9/16	12 3/4	17 3/8	14 1/16	14 13/16	3/4	2 1/2	3	2	338
18CS	2	10 13/16	14	19	15 11/16	16 11/16	3/4	3	4	2 3/8	439
19CS	2 1/4	9 15/16	16	21	14 13/16	16 1/16	3/4	3	4 1/2	2 5/8	534
20CS	2 3/4	10 13/16	18	23	16 1/16	17 5/16	1	4	4 1/2	3 1/8	690
21CS	2 3/4	12 9/16	20	25	18 5/8	20 1/8	1	4	4 1/2	3 1/8	986
22CS	3	14 13/16	24	29	21 3/4	23 1/2	1	4	5	3 3/8	1523

Type BT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

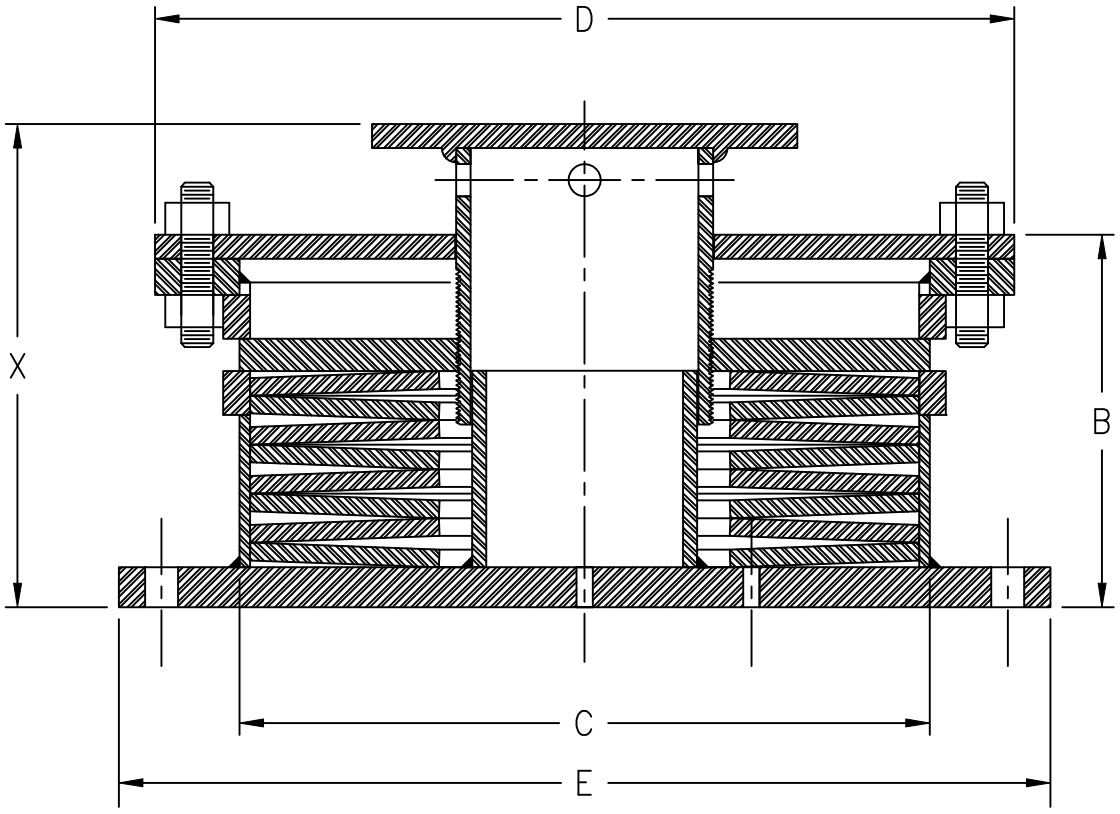
Figure 500 CS Type CT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. D	Length X Min	Length X Max	Lug Thk. T	clevis opening S	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1CS	1/2	5 5/8	2 3/8	4 3/8	8 3/16	8 3/8	1/4	7/8	1 1/4	1 1/2	11/16	7
2CS	1/2	5 3/4	2 3/8	4 3/8	8 3/8	8 9/16	1/4	7/8	1 1/4	1 1/2	11/16	7
3CS	1/2	6	2 7/8	4 7/8	8 3/8	8 9/16	1/4	7/8	1 1/4	1 1/2	11/16	10
4CS	1/2	5 5/8	2 3/8	4 3/8	8 1/4	8 7/16	1/4	7/8	1 1/4	1 1/2	11/16	8
5CS	1/2	5 11/16	4 1/2	6 1/2	8 5/16	8 1/2	1/4	7/8	1 1/4	1 1/2	11/16	19
6CS	1/2	5 3/4	2 7/8	4 7/8	8 5/16	8 9/16	1/4	1 1/16	1 1/4	1 1/2	11/16	10
7CS	1/2	6	4 1/2	6 1/2	8 3/4	9	1/4	1 1/16	1 1/4	1 1/2	13/16	21
8CS	1/2	6 7/16	6 5/8	8 5/8	9 5/16	9 11/16	1/4	1 1/16	1 1/4	1 1/2	13/16	40
9CS	3/4	6 3/16	6 5/8	8 5/8	9 1/8	9 1/2	3/8	1 1/4	1 1/4	1 1/2	15/16	42
10CS	3/4	6 1/4	8 5/8	10 3/4	9 3/16	9 9/16	3/8	1 1/4	1 1/4	1 1/2	15/16	70
11CS	3/4	6 3/4	8 5/8	9	10	10 3/8	3/8	1 1/4	1 1/4	1 1/2	15/16	68
12CS	1	7 1/16	8 5/8	9	10 1/2	10 7/8	1/2	1 5/8	1 1/2	2	1 1/4	71
13CS	1	8	8 5/8	12	11 5/8	12 1/8	1/2	1 5/8	1 1/2	2	1 1/4	102
14CS	1 1/4	7 3/4	8 5/8	12	11 3/8	12 1/8	5/8	2	2	3	1 1/2	108
15CS	1 1/2	9 5/16	10 3/4	14 3/8	13 1/2	14 1/4	5/8	2	2	3	1 1/2	207
16CS	1 1/2	8 1/8	10 3/4	14 1/2	12 1/8	12 7/8	3/4	2 3/8	2 1/2	3	1 3/4	193
17CS	1 3/4	9 9/16	12 3/4	17 3/8	14 1/16	14 13/16	3/4	2 5/8	2 1/2	3	2	338
18CS	2	10 13/16	14	19	15 11/16	16 11/16	3/4	2 7/8	3	4	2 3/8	439
19CS	2 1/4	9 15/16	16	21	14 13/16	16 1/16	3/4	3 1/8	3	4 1/2	2 5/8	534
20CS	2 3/4	10 13/16	18	23	16 1/16	17 5/16	1	3 3/8	4	4 1/2	3 1/8	690
21CS	2 3/4	12 9/16	20	25	18 5/8	20 1/8	1	3 5/8	4	4 1/2	3 1/8	986

Type CT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

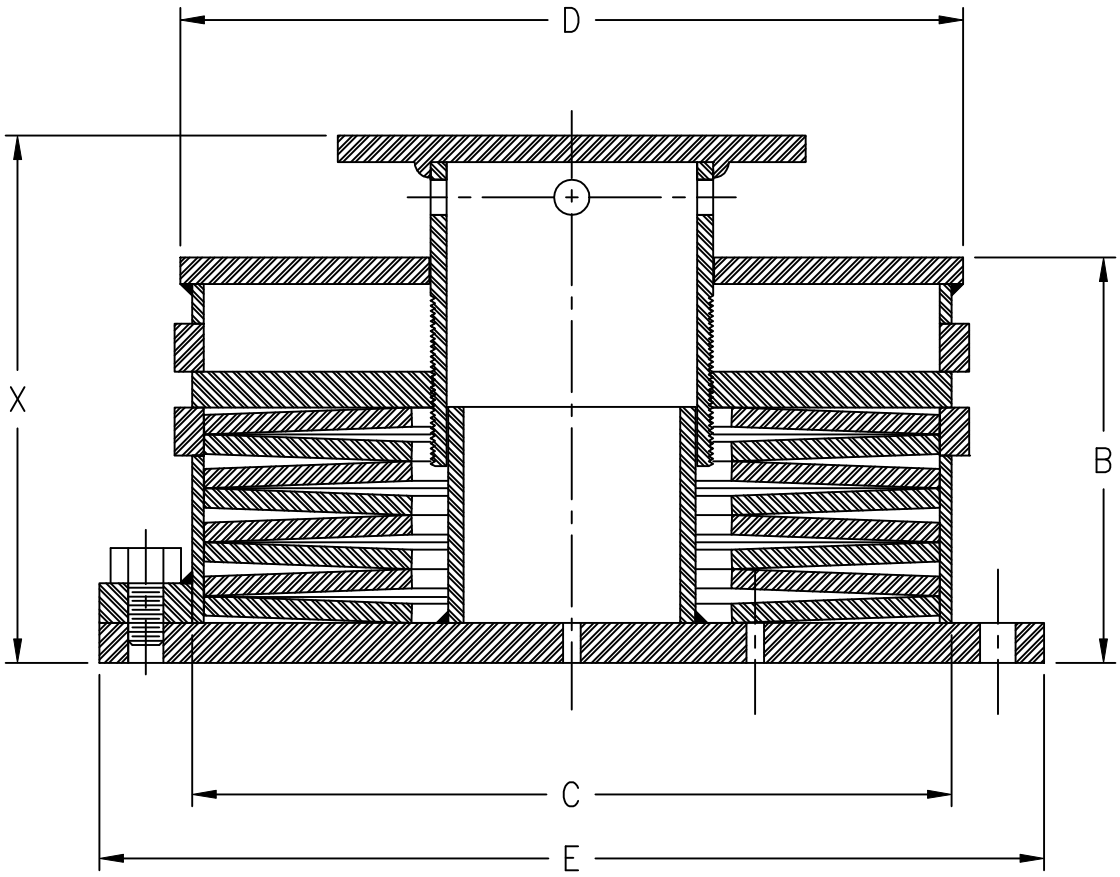
Figure 750 CS Type F



Item SIZE	Casing Length B	Casing Diam. C	Cover Plate Diam. D	Base Plate Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Base Plate Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1CS	8 1/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 5/16	11 11/16	1.0500	2	3/16	9
2CS	8 1/4	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 9/16	11 15/16	1.0500	3 7/8	3/16	9
3CS	8	2 7/8	4 7/8	4 7/8	4	3/8	3/16	11 1/2	11 7/8	1.3150	3 7/8	3/16	12
4CS	8 1/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 3/8	11 3/4	1.0500	3 7/8	3/16	10
5CS	8 1/8	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/16	11 7/16	11 13/16	1.9000	3 7/8	3/16	26
6CS	8 3/16	2 7/8	4 7/8	4 7/8	4	3/8	1/4	11 1/2	11 15/16	1.3150	3 7/8	3/16	13
7CS	8 11/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/8	12 1/8	12 9/16	1.9000	3 7/8	1/4	29
8CS	8 7/8	6 5/8	8 5/8	8 5/8	7 3/4	1/2	3/8	12 7/16	13	3 1/2	3 7/8	3/8	52
9CS	8 5/8	6 5/8	8 5/8	8 5/8	7 3/4	1/2	1/2	12 1/16	12 5/8	2 7/8	3 7/8	1/4	58
10CS	8 5/8	8 5/8	10 3/4	10 3/4	9 7/8	1/2	1/2	12 3/16	12 13/16	4 1/2	5 3/4	3/8	92
11CS	9 1/4	8 5/8	9	9	8	1/2	5/8	12 15/16	13 9/16	4 1/2	6 3/8	3/8	91
12CS	9 13/16	8 5/8	9	9	8	3/4	5/8	13 11/16	14 5/16	4 1/2	6 3/8	3/8	97
13CS	10 3/4	8 5/8	12	12	10 1/2	3/4	3/4	14 15/16	15 11/16	4 1/2	6 3/8	1/2	128
14CS	10 1/8	8 5/8	12	12	10 1/2	3/4	3/4	14 1/8	15 1/4	4 1/2	8 3/8	1/2	129
15CS	11 7/8	10 3/4	14 3/8	14 3/8	12 7/8	3/4	3/4	16 7/16	17 9/16	4 1/2	8 3/8	5/8	237
16CS	10 1/16	10 3/4	14 1/2	14 1/2	13	3/4	3/4	14 1/16	15 5/16	5 9/16	8 3/8	5/8	204
17CS	11 1/2	12 3/4	17 3/8	17 3/8	15 7/16	1	3/4	16 1/8	17 3/8	5 9/16	8 3/8	3/4	337
18CS	13 3/8	14	19	19	17	1	1	18 5/8	20 1/8	5 9/16	8 3/8	1	474
19CS	11 3/8	16	21	21	19	1	1	15 15/16	17 11/16	6 5/8	12 1/2	1	523
20CS	12 7/16	18	23	23	21	1	1	17 7/8	19 3/4	8 5/8	12 1/2	1 1/4	679
21CS	14 1/4	20	25	25	23	1	1	20 3/8	22 5/8	8 5/8	12 1/2	1 1/2	937
22CS	16 9/16	24	29	29	27	1	1	23 5/16	25 13/16	10 3/4	12 1/2	1 5/8	1429

Type F is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

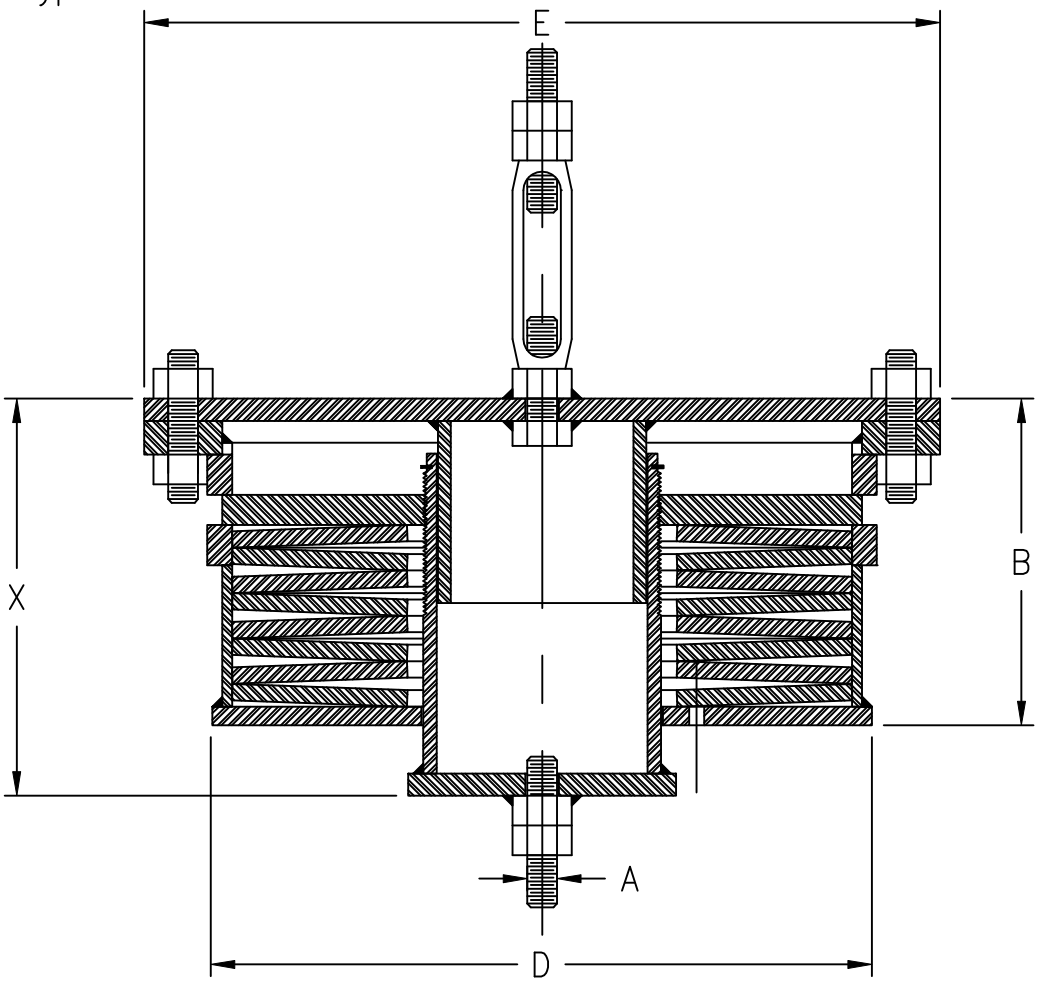
Figure 750 CS Type FW



Item SIZE	Casing Length B	Casing Diam. C	Flange Diam. D	Bottom Flange Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Bottom Flange Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1CS	8 1/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 5/16	11 1/2	1.0500	2	3/16	9
2CS	8 1/4	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 9/16	11 3/4	1.0500	3 7/8	3/16	9
3CS	8	2 7/8	4 7/8	4 7/8	4	3/8	3/16	11 1/2	11 11/16	1.3150	3 7/8	3/16	12
4CS	8 1/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 3/8	11 9/16	1.0500	3 7/8	3/16	10
5CS	8 1/8	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/16	11 7/16	11 5/8	1.9000	3 7/8	3/16	26
6CS	8 3/16	2 7/8	4 7/8	4 7/8	4	3/8	1/4	11 1/2	11 3/4	1.3150	3 7/8	3/16	13
7CS	8 11/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	3/8	12 1/8	12 3/8	1.9000	3 7/8	1/4	29
8CS	8 7/8	6 5/8	8 5/8	8 5/8	7 3/4	1/2	3/8	12 7/16	12 13/16	3 1/2	3 7/8	3/8	52
9CS	8 5/8	6 5/8	8 5/8	8 5/8	7 3/4	1/2	1/2	12 1/16	12 7/16	2 7/8	3 7/8	1/4	58
10CS	8 5/8	8 5/8	10 3/4	10 3/4	9 7/8	1/2	1/2	12 1/8	12 1/2	4 1/2	5 3/4	3/8	92
11CS	9 1/4	8 5/8	9	9	8	1/2	5/8	12 7/8	13 1/4	4 1/2	6 3/8	3/8	91
12CS	9 13/16	8 5/8	9	9	8	3/4	5/8	13 11/16	14 1/16	4 1/2	6 3/8	3/8	96
13CS	10 3/4	8 5/8	12	12	10 1/2	3/4	3/4	14 15/16	15 7/16	4 1/2	6 3/8	1/2	128
14CS	10 1/8	8 5/8	12	12	10 1/2	3/4	3/4	14 1/8	14 7/8	4 1/2	8 3/8	1/2	129
15CS	11 7/8	10 3/4	14 3/8	14 3/8	12 7/8	3/4	3/4	16 7/16	17 3/16	4 1/2	8 3/8	5/8	237
16CS	10 1/16	10 3/4	14 1/2	14 1/2	13	3/4	3/4	13 15/16	14 11/16	5 9/16	8 3/8	5/8	204
17CS	11 1/2	12 3/4	17 3/8	17 3/8	15 7/16	1	3/4	16 1/8	16 7/8	5 9/16	8 3/8	3/4	336
18CS	13 3/8	14	19	19	17	1	1	18 5/8	19 5/8	5 9/16	8 3/8	1	473
19CS	11 3/8	16	21	21	19	1	1	15 15/16	17 3/16	6 5/8	12 1/2	1	522
20CS	12 7/16	18	23	23	21	1	1	17 7/8	19 1/8	8 5/8	12 1/2	1 1/4	677
21CS	14 1/4	20	25	25	23	1	1	20 3/8	21 7/8	8 5/8	12 1/2	1 1/2	935
22CS	16 9/16	24	29	29	27	1	1	23 5/16	25 1/16	10 3/4	12 1/2	1 5/8	1426

Type FW is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

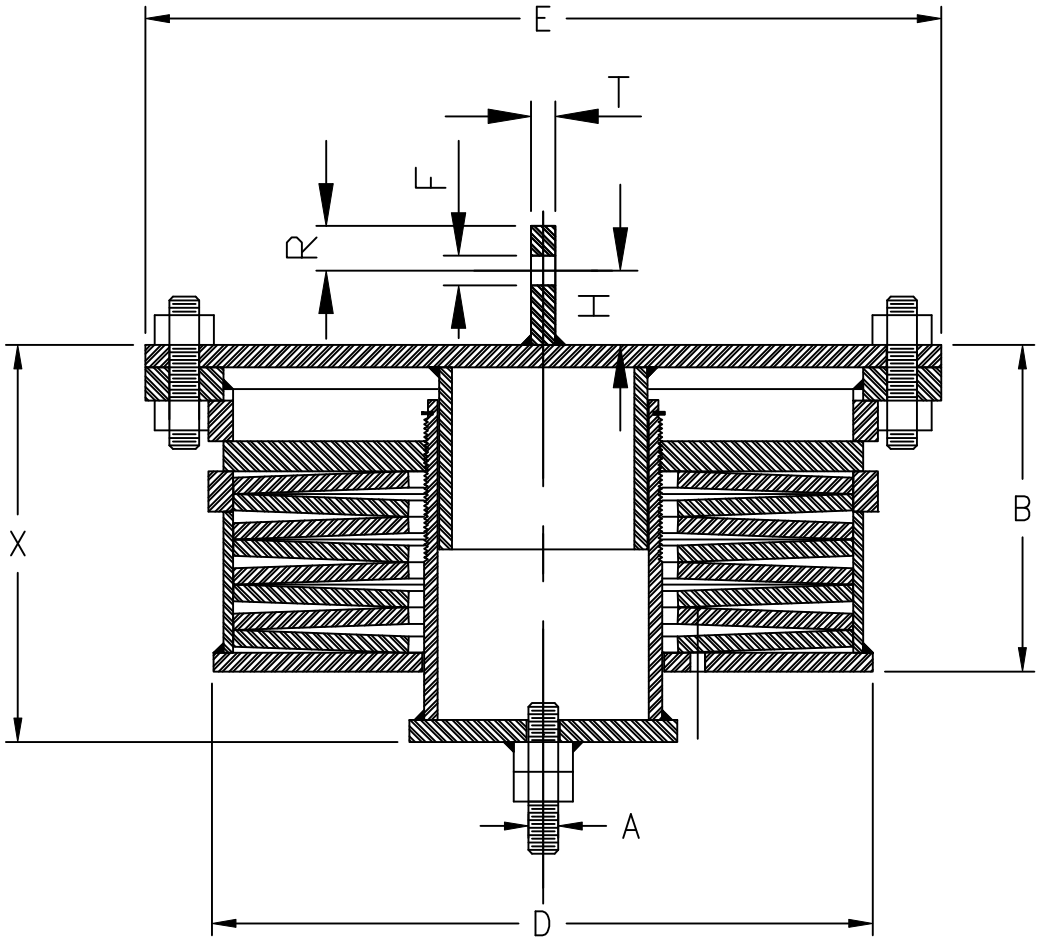
Figure 750 CS Type AT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. E	Length X Min	Length X Max	Wgt lbs. (est.)
1CS	1/2	8 1/16	2 3/8	4 3/8	11 5/16	11 1/2	9
2CS	1/2	8 1/4	2 3/8	4 3/8	11 9/16	11 3/4	9
3CS	1/2	8	2 7/8	4 7/8	11 1/2	11 11/16	12
4CS	1/2	8 1/8	2 3/8	4 3/8	11 3/8	11 9/16	10
5CS	1/2	8 1/8	4 1/2	6 1/2	11 7/16	11 5/8	26
6CS	1/2	8 1/8	2 7/8	4 7/8	11 7/16	11 11/16	12
7CS	1/2	8 9/16	4 1/2	6 1/2	12	12 1/4	27
8CS	1/2	8 15/16	6 5/8	8 5/8	12 9/16	12 15/16	52
9CS	3/4	8 9/16	6 5/8	8 5/8	12 3/16	12 9/16	55
10CS	3/4	8 5/8	8 5/8	10 3/4	12 1/4	12 5/8	91
11CS	3/4	9 1/4	8 5/8	9	13 1/4	13 5/8	90
12CS	1	9 13/16	8 5/8	9	13 15/16	14 5/16	94
13CS	1	10 7/8	8 5/8	12	15 5/16	15 13/16	127
14CS	1 1/4	10 1/4	8 5/8	12	14 5/8	15 3/8	129
15CS	1 1/2	12 3/8	10 3/4	14 3/8	17 7/16	18 3/16	254
16CS	1 1/2	10 9/16	10 3/4	14 1/2	15 3/16	15 15/16	229
17CS	1 3/4	12 1/2	12 3/4	17 3/8	17 3/4	18 1/2	401
18CS	2	14 1/8	14	19	19 7/8	20 7/8	525
19CS	2 1/4	12 3/8	16	21	17 15/16	19 3/16	611
20CS	2 3/4	13 9/16	18	23	19 5/8	20 7/8	795
21CS	2 3/4	15 3/4	20	25	22 5/8	24 1/8	1138
22CS	3	18 9/16	24	29	26 9/16	28 5/16	1780

Type AT is designed for supporting from a member by placing a threaded rod in the top turnbuckle and locking the jam nut. Adjustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

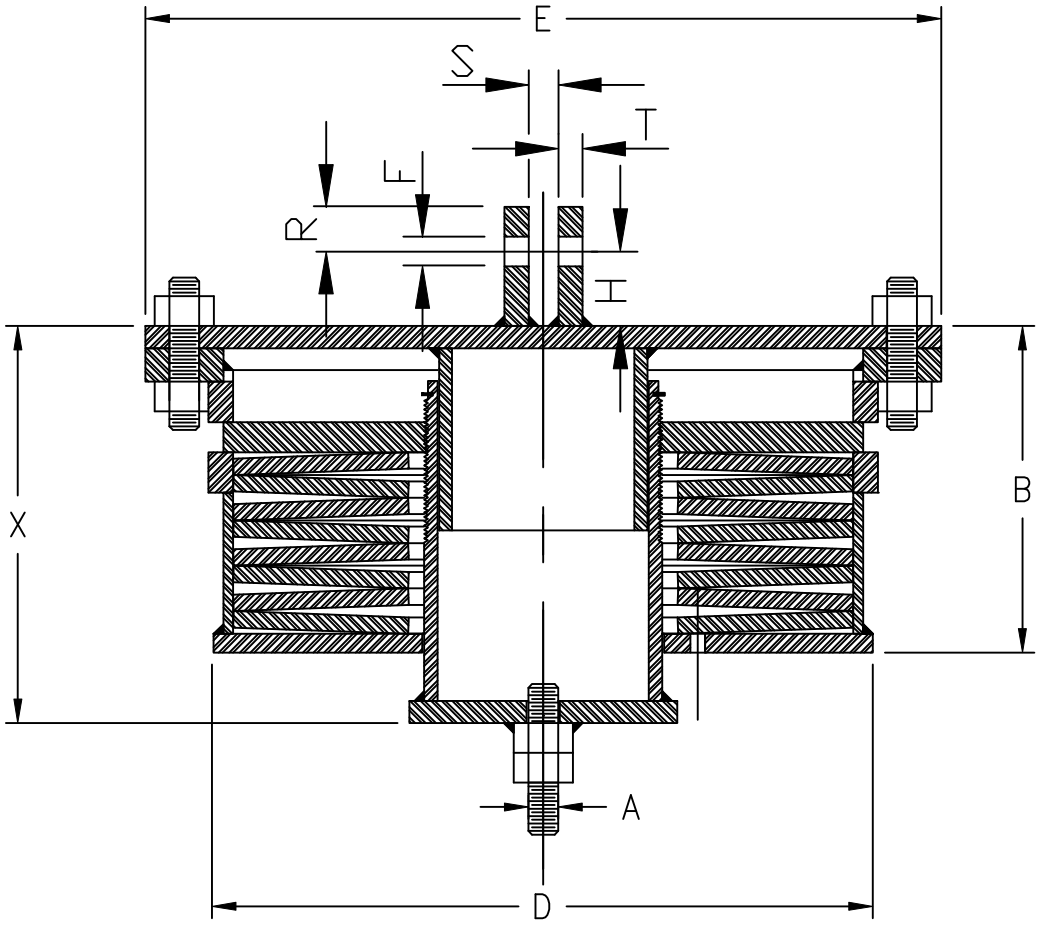
Figure 750 CS Type BT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. D	Flange Diam. E	Length X Min	Length X Max	Lug Thk. T	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1CS	1/2	8 1/16	2 3/8	4 3/8	11 5/16	11 1/2	1/4	1 1/4	1 1/2	11/16	9
2CS	1/2	8 1/4	2 3/8	4 3/8	11 9/16	11 3/4	1/4	1 1/4	1 1/2	11/16	9
3CS	1/2	8	2 7/8	4 7/8	11 1/2	11 11/16	1/4	1 1/4	1 1/2	11/16	12
4CS	1/2	8 1/8	2 3/8	4 3/8	11 3/8	11 9/16	1/4	1 1/4	1 1/2	11/16	10
5CS	1/2	8 1/8	4 1/2	6 1/2	11 7/16	11 5/8	1/4	1 1/4	1 1/2	11/16	26
6CS	1/2	8 1/8	2 7/8	4 7/8	11 7/16	11 11/16	1/4	1 1/4	1 1/2	11/16	12
7CS	1/2	8 9/16	4 1/2	6 1/2	12	12 1/4	1/4	1 1/4	1 1/2	13/16	27
8CS	1/2	8 15/16	6 5/8	8 5/8	12 9/16	12 15/16	1/4	1 1/4	1 1/2	13/16	52
9CS	3/4	8 9/16	6 5/8	8 5/8	12 3/16	12 9/16	3/8	1 1/4	1 1/2	15/16	55
10CS	3/4	8 5/8	8 5/8	10 3/4	12 1/4	12 5/8	3/8	1 1/4	1 1/2	15/16	91
11CS	3/4	9 1/4	8 5/8	9	13 1/4	13 5/8	3/8	1 1/4	1 1/2	15/16	90
12CS	1	9 13/16	8 5/8	9	13 15/16	14 5/16	1/2	1 1/2	2	1 1/4	94
13CS	1	10 7/8	8 5/8	12	15 5/16	15 13/16	1/2	1 1/2	2	1 1/4	127
14CS	1 1/4	10 1/4	8 5/8	12	14 5/8	15 3/8	5/8	2	3	1 1/2	129
15CS	1 1/2	12 3/8	10 3/4	14 3/8	17 7/16	18 3/16	5/8	2	3	1 1/2	254
16CS	1 1/2	10 9/16	10 3/4	14 1/2	15 3/16	15 15/16	3/4	2 1/2	3	1 3/4	229
17CS	1 3/4	12 1/2	12 3/4	17 3/8	17 3/4	18 1/2	3/4	2 1/2	3	2	401
18CS	2	14 1/8	14	19	19 7/8	20 7/8	3/4	3	4	2 3/8	525
19CS	2 1/4	12 3/8	16	21	17 15/16	19 3/16	3/4	3	4 1/2	2 5/8	611
20CS	2 3/4	13 9/16	18	23	19 5/8	20 7/8	1	4	4 1/2	3 1/8	795
21CS	2 3/4	15 3/4	20	25	22 5/8	24 1/8	1	4	4 1/2	3 1/8	1138
22CS	3	18 9/16	24	29	26 9/16	28 5/16	1	4	5	3 3/8	1780

Type BT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

Figure 750 CS Type CT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. D	Length X Min	Length X Max	Lug Thk. T	clevis opening S	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1CS	1/2	8 1/16	2 3/8	4 3/8	11 5/16	11 1/2	1/4	7/8	1 1/4	1 1/2	11/16	9
2CS	1/2	8 1/4	2 3/8	4 3/8	11 9/16	11 3/4	1/4	7/8	1 1/4	1 1/2	11/16	9
3CS	1/2	8	2 7/8	4 7/8	11 1/2	11 11/16	1/4	7/8	1 1/4	1 1/2	11/16	12
4CS	1/2	8 1/8	2 3/8	4 3/8	11 3/8	11 9/16	1/4	7/8	1 1/4	1 1/2	11/16	10
5CS	1/2	8 1/8	4 1/2	6 1/2	11 7/16	11 5/8	1/4	7/8	1 1/4	1 1/2	11/16	26
6CS	1/2	8 1/8	2 7/8	4 7/8	11 7/16	11 11/16	1/4	1 1/16	1 1/4	1 1/2	11/16	12
7CS	1/2	8 9/16	4 1/2	6 1/2	12	12 1/4	1/4	1 1/16	1 1/4	1 1/2	13/16	27
8CS	1/2	8 15/16	6 5/8	8 5/8	12 9/16	12 15/16	1/4	1 1/16	1 1/4	1 1/2	13/16	52
9CS	3/4	8 9/16	6 5/8	8 5/8	12 3/16	12 9/16	3/8	1 1/4	1 1/4	1 1/2	15/16	55
10CS	3/4	8 5/8	8 5/8	10 3/4	12 1/4	12 5/8	3/8	1 1/4	1 1/4	1 1/2	15/16	91
11CS	3/4	9 1/4	8 5/8	9	13 1/4	13 5/8	3/8	1 1/4	1 1/4	1 1/2	15/16	90
12CS	1	9 13/16	8 5/8	9	13 15/16	14 5/16	1/2	1 5/8	1 1/2	2	1 1/4	94
13CS	1	10 7/8	8 5/8	12	15 5/16	15 13/16	1/2	1 5/8	1 1/2	2	1 1/4	127
14CS	1 1/4	10 1/4	8 5/8	12	14 5/8	15 3/8	5/8	2	2	3	1 1/2	129
15CS	1 1/2	12 3/8	10 3/4	14 3/8	17 7/16	18 3/16	5/8	2	2	3	1 1/2	254
16CS	1 1/2	10 9/16	10 3/4	14 1/2	15 3/16	15 15/16	3/4	2 3/8	2 1/2	3	1 3/4	229
17CS	1 3/4	12 1/2	12 3/4	17 3/8	17 3/4	18 1/2	3/4	2 5/8	2 1/2	3	2	401
18CS	2	14 1/8	14	19	19 7/8	20 7/8	3/4	2 7/8	3	4	2 3/8	525
19CS	2 1/4	12 3/8	16	21	17 15/16	19 3/16	3/4	3 1/8	3	4 1/2	2 5/8	611
20CS	2 3/4	13 9/16	18	23	19 5/8	20 7/8	1	3 3/8	4	4 1/2	3 1/8	795
21CS	2 3/4	15 3/4	20	25	22 5/8	24 1/8	1	3 5/8	4	4 1/2	3 1/8	1138
22CS	3	18 9/16	24	29	26 9/16	28 5/16	1	3 7/8	4	5	3 3/8	1780

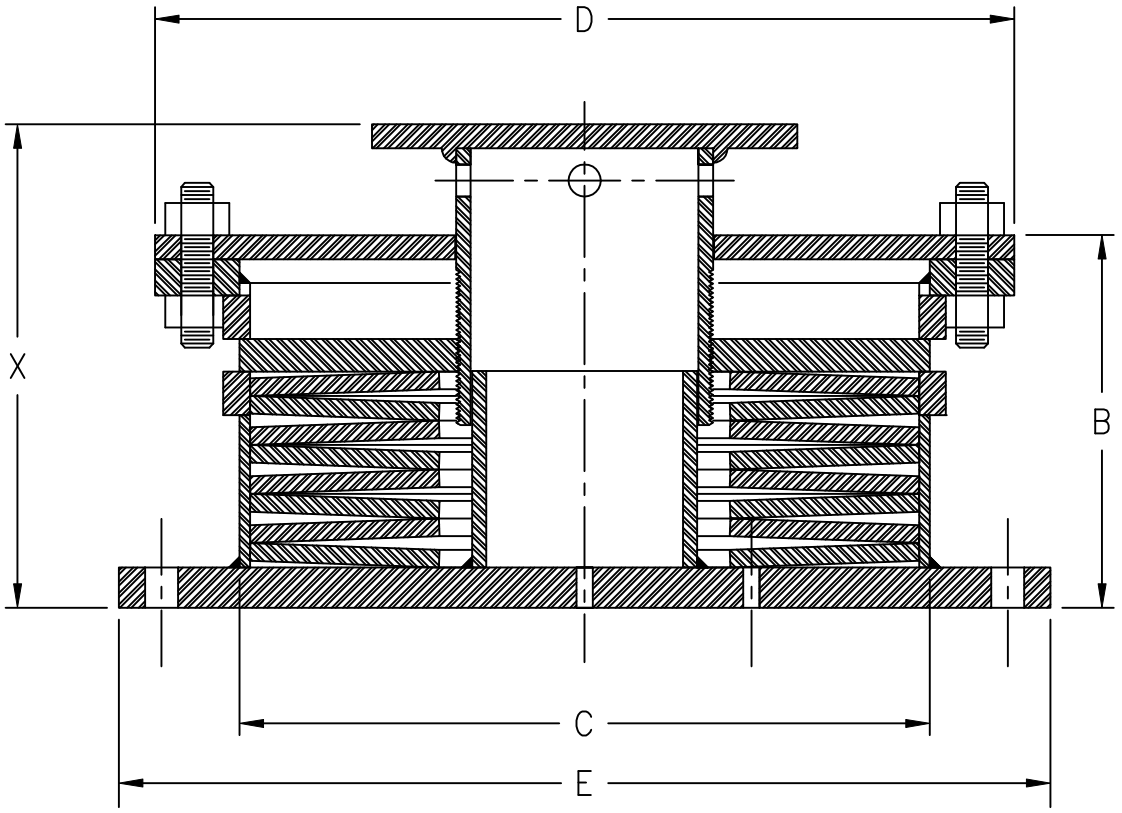
Type CT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

DST STAINLESS STEEL SPRING SUPPORT TYPES, FIGURES AND SIZES

The overall dimensions of each figure type are provided in this section.
DST Stainless Steel Spring Supports are divided into five displacement categories:

1) Figure 125 - Supports that will satisfy movements up to (1/8”),
2) Figure 250 - Supports that will satisfy movements up to (1/4”),
3) Figure 375 - Supports that will satisfy movements up to (3/8”),
4) Figure 500 - Supports that will satisfy movements up to (1/2”),
5) Figure 750 - Supports that will satisfy movements up to (3/4”).

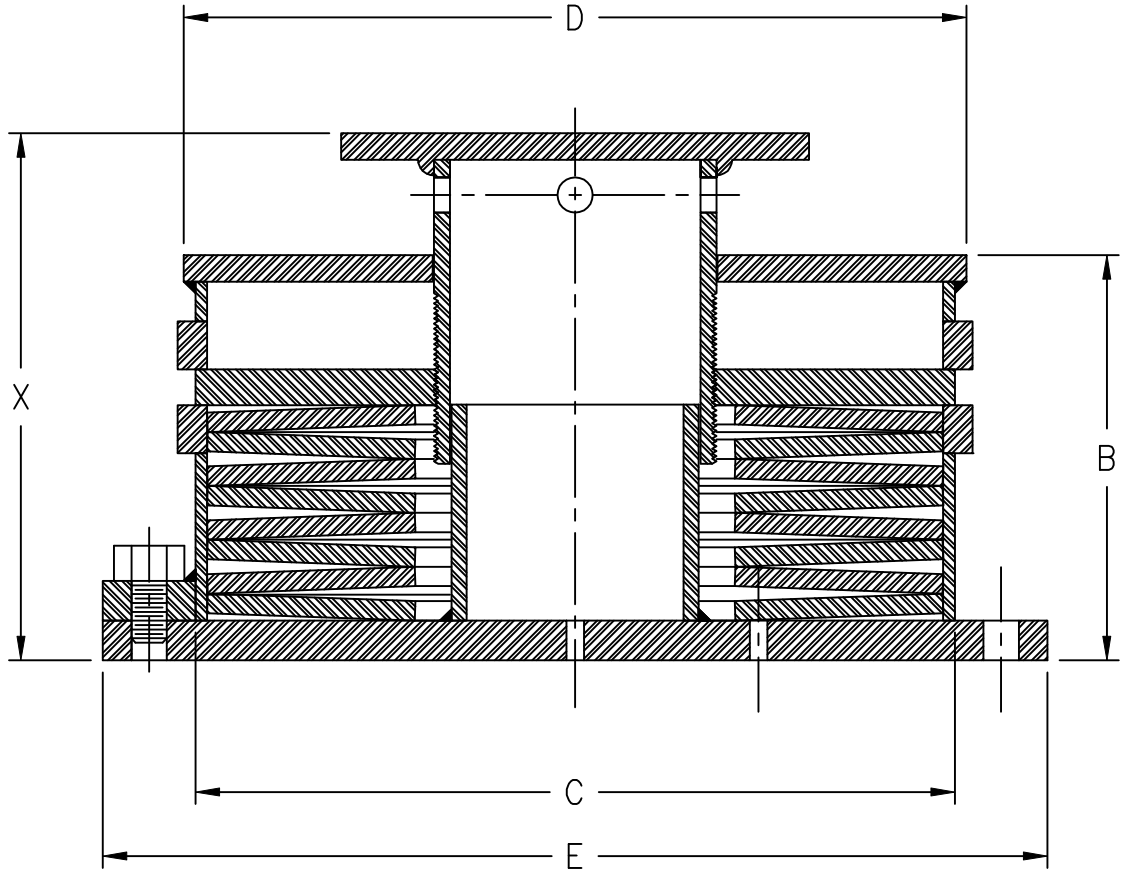
Figure 125 SS Type F



Item SIZE	Casing Length B	Casing Diam. C	Cover Plate Diam. D	Base Plate Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Base Plate Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1SS	1 15/16	1 7/8	3 7/8	3 7/8	3	3/8	3/16	3 3/8	3 3/4	0.8400	2	3/16	3
2SS	2 1/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 1/2	3 7/8	1.0500	3 7/8	3/16	5
3SS	2 1/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 7/16	3 13/16	1.0500	3 7/8	3/16	5
4SS	2 1/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 7/16	3 13/16	1.0500	3 7/8	3/16	5
5SS	2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 5/8	4	1.0500	3 7/8	3/16	5
6SS	2 1/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	3 11/16	4 1/16	1.6600	3 7/8	3/16	8
7SS	2	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	3 5/8	4	1.6600	3 7/8	3/16	8
8SS	2 3/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	1/4	3 13/16	4 1/4	1.6600	3 7/8	3/16	8
9SS	2 3/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	1/4	3 15/16	4 3/8	1.9000	3 7/8	3/16	12
10SS	2 5/16	4 1/2	7	7	5 15/16	1/2	1/4	4 1/16	4 9/16	2 3/8	5 3/4	3/16	15
11SS	2 9/16	6 5/8	9	9	8	1/2	1/4	4 5/16	4 15/16	3 1/2	6 3/8	1/4	28
12SS	2 3/4	6 5/8	9	9	8	1/2	3/8	4 3/4	5 3/8	3 1/2	6 3/8	3/8	34
13SS	3 1/16	8 5/8	12	12	10 1/2	3/4	1/2	5 1/4	6	3 1/2	6 3/8	3/8	67
14SS	3 1/8	8 5/8	12	12	10 1/2	3/4	1/2	5 5/16	6 1/16	4 1/2	8 3/8	3/8	68
15SS	3 7/16	10 3/4	14 1/2	14 1/2	13	3/4	1/2	5 5/8	6 7/16	4 1/2	8 3/8	3/8	103
16SS	3 9/16	10 3/4	14 1/2	14 1/2	13	3/4	1/2	5 3/4	6 11/16	5 9/16	8 3/8	3/8	107
17SS	3 1/2	12 3/4	16 1/2	16 1/2	15	3/4	5/8	5 13/16	6 5/8	5 9/16	8 3/8	3/8	152
18SS	4 5/16	14	19	19	17	3/4	5/8	6 3/4	7 11/16	5 9/16	8 3/8	3/8	225
19SS	4 5/8	16	21	21	19	3/4	3/4	7 1/8	8 1/4	6 5/8	12 1/2	3/8	302
20SS	4 5/16	18	23	23	21	1	3/4	7 1/16	7 13/16	8 5/8	12 1/2	3/8	362
21SS	4 1/2	20	25	25	23	1	3/4	7 5/8	8 9/16	8 5/8	12 1/2	3/4	451
22SS	5 5/16	24	29	29	27	1	3/4	8 9/16	9 11/16	10 3/4	12 1/2	3/4	645
23SS	5 7/16	26	31	31	29	1	3/4	8 3/4	9 15/16	10 3/4	12 1/2	3/4	742

Type F is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

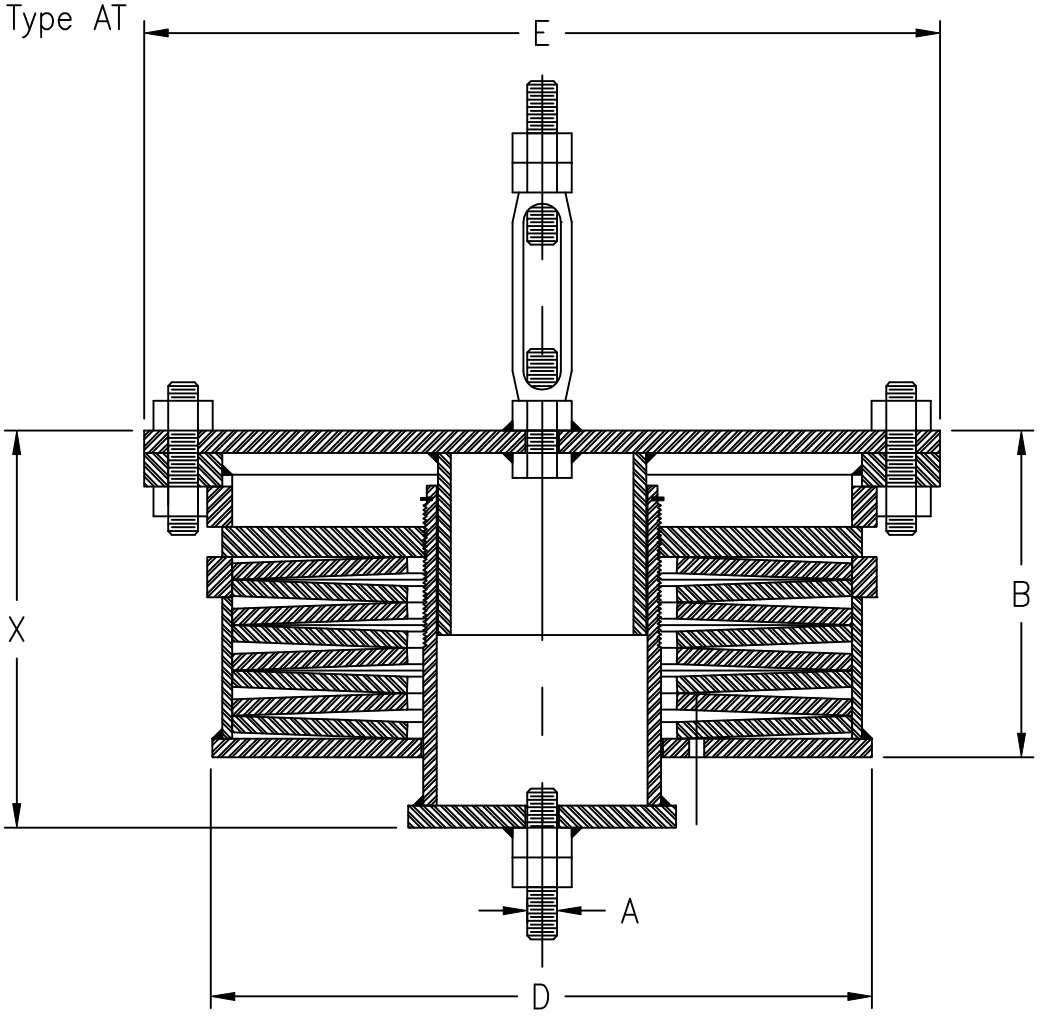
Figure 125 SS Type FW



Item SIZE	Casing Length B	Casing Diam. C	Flange Diam. D	Bottom Flange Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Bottom Flange Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1SS	1 15/16	1 7/8	3 7/8	3 7/8	3	3/8	3/16	3 3/8	3 9/16	0.8400	2	3/16	3
2SS	2 1/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 1/2	3 11/16	1.0500	3 7/8	3/16	5
3SS	2 1/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 7/16	3 5/8	1.0500	3 7/8	3/16	5
4SS	2 1/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 7/16	3 5/8	1.0500	3 7/8	3/16	5
5SS	2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	3 5/8	3 13/16	1.0500	3 7/8	3/16	5
6SS	2 1/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	3 11/16	3 7/8	1.6600	3 7/8	3/16	8
7SS	2	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	3 5/8	3 13/16	1.6600	3 7/8	3/16	8
8SS	2 3/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	1/4	3 13/16	4 1/16	1.6600	3 7/8	3/16	8
9SS	2 3/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	1/4	3 15/16	4 3/16	1.9000	3 7/8	3/16	12
10SS	2 5/16	4 1/2	7	7	5 15/16	1/2	1/4	4	4 1/4	2 3/8	5 3/4	3/16	15
11SS	2 9/16	6 5/8	9	9	8	1/2	1/4	4 1/4	4 5/8	3 1/2	6 3/8	1/4	28
12SS	2 3/4	6 5/8	9	9	8	1/2	3/8	4 3/4	5 1/8	3 1/2	6 3/8	3/8	33
13SS	3 1/16	8 5/8	12	12	10 1/2	3/4	1/2	5 1/4	5 5/8	3 1/2	6 3/8	3/8	67
14SS	3 1/8	8 5/8	12	12	10 1/2	3/4	1/2	5 5/16	5 11/16	4 1/2	8 3/8	3/8	68
15SS	3 7/16	10 3/4	14 1/2	14 1/2	13	3/4	1/2	5 1/2	6	4 1/2	8 3/8	3/8	102
16SS	3 9/16	10 3/4	14 1/2	14 1/2	13	3/4	1/2	5 5/8	6 1/8	5 9/16	8 3/8	3/8	106
17SS	3 1/2	12 3/4	16 1/2	16 1/2	15	3/4	5/8	5 13/16	6 5/16	5 9/16	8 3/8	3/8	152
18SS	4 5/16	14	19	19	17	3/4	5/8	7	7 3/4	5 9/16	8 3/8	3/8	226
19SS	4 5/8	16	21	21	19	3/4	3/4	7 1/4	8	6 5/8	12 1/2	3/8	302
20SS	4 5/16	18	23	23	21	1	3/4	7 5/8	8 3/8	8 5/8	12 1/2	3/8	365
21SS	4 1/2	20	25	25	23	1	3/4	8 1/16	8 13/16	8 5/8	12 1/2	3/4	453
22SS	5 5/16	24	29	29	27	1	3/4	9	10	10 3/4	12 1/2	3/4	649
23SS	5 7/16	26	31	31	29	1	3/4	9 1/16	10 1/16	10 3/4	12 1/2	3/4	744

Type FW is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

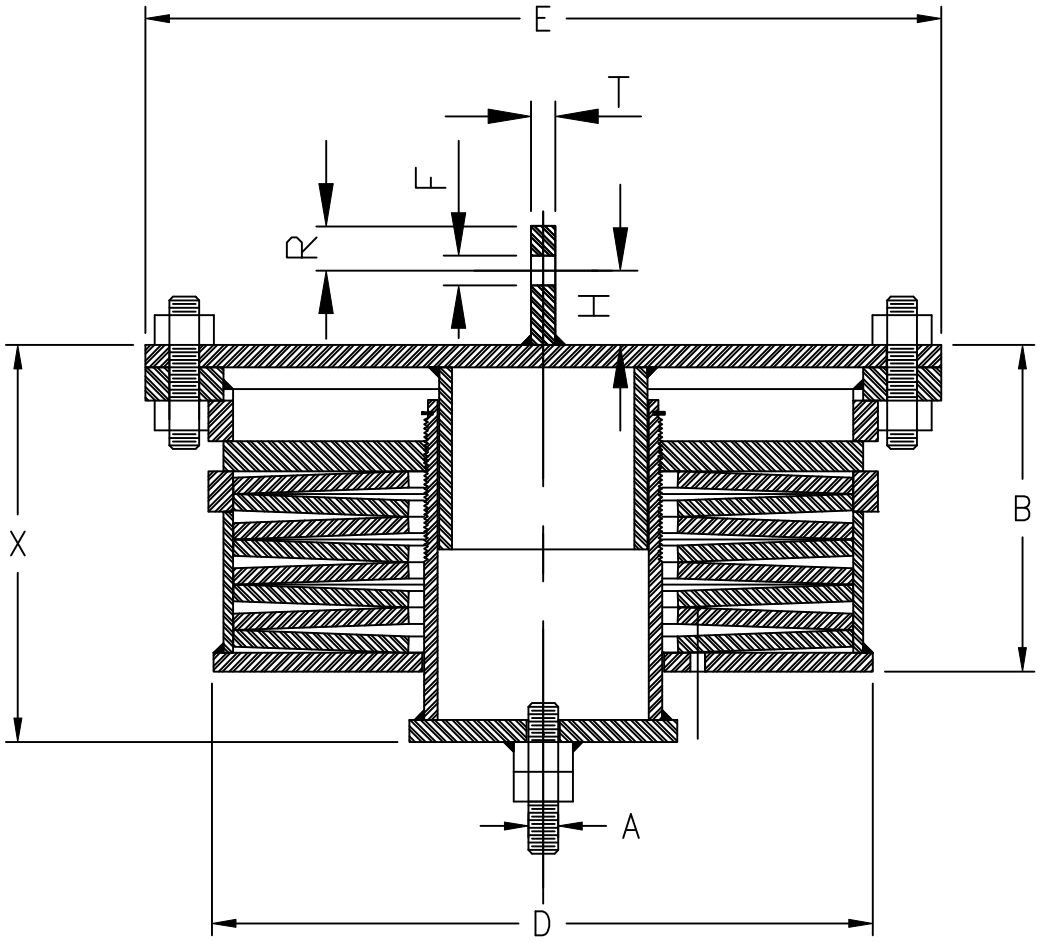
Figure 125 SS Type AT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. E	Length X Min	Length X Max	Wgt lbs. (est.)
1SS	1/2	1 15/16	1 7/8	3 7/8	3 3/8	3 9/16	3
2SS	1/2	2 1/16	2 3/8	4 3/8	3 1/2	3 11/16	5
3SS	1/2	2 1/16	2 3/8	4 3/8	3 7/16	3 5/8	5
4SS	1/2	2 1/16	2 3/8	4 3/8	3 7/16	3 5/8	5
5SS	1/2	2	2 3/8	4 3/8	3 5/8	3 13/16	5
6SS	1/2	2 1/8	3 1/2	5 1/2	3 13/16	4	7
7SS	5/8	2 1/16	3 1/2	5 1/2	3 3/4	3 15/16	7
8SS	5/8	2 1/4	3 1/2	5 1/2	3 15/16	4 3/16	8
9SS	3/4	2 3/8	4 1/2	6 1/2	4 5/16	4 9/16	13
10SS	3/4	2 9/16	4 1/2	7	4 1/2	4 3/4	17
11SS	3/4	2 15/16	6 5/8	9	5 1/8	5 1/2	32
12SS	1	3	6 5/8	9	5 3/8	5 3/4	34
13SS	1	3 5/16	8 5/8	12	5 7/8	6 1/4	71
14SS	1 1/4	3 1/2	8 5/8	12	6 1/16	6 7/16	76
15SS	1 1/4	3 13/16	10 3/4	14 1/2	6 1/2	7	122
16SS	1 1/4	4 5/16	10 3/4	14 1/2	7 1/4	7 3/4	137
17SS	1 1/2	4 3/8	12 3/4	16 1/2	7 7/16	7 15/16	201
18SS	2	5 9/16	14	19	8 7/8	9 5/8	301
19SS	2 1/4	5 7/8	16	21	9 7/8	10 5/8	414
20SS	2 3/4	6 3/8	18	23	11	11 3/4	543
21SS	2 3/4	6 7/16	20	25	11 3/16	11 15/16	657
22SS	3	7 5/8	24	29	12 3/4	13 3/4	982
23SS	3	8 1/16	26	31	13 7/16	14 7/16	1213

Type AT is designed for supporting from a member by placing a threaded rod in the top turnbuckle and locking the jam nut. Adjustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

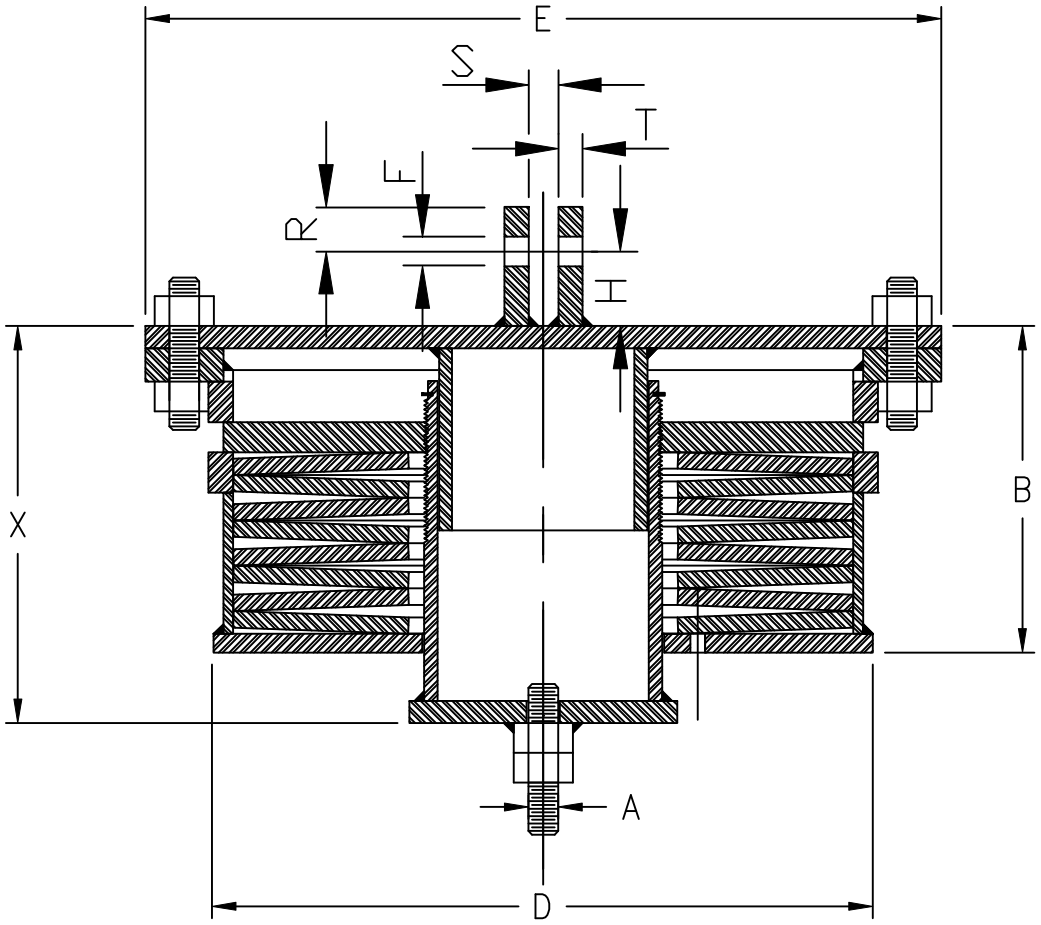
Figure 125 SS Type BT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. D	Flange Diam. E	Length X Min	Length X Max	Lug Thk. T	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1SS	1/2	1 15/16	1 7/8	3 7/8	3 3/8	3 9/16	1/4	1 1/4	1 1/2	11/16	3
2SS	1/2	2 1/16	2 3/8	4 3/8	3 1/2	3 11/16	1/4	1 1/4	1 1/2	11/16	5
3SS	1/2	2 1/16	2 3/8	4 3/8	3 7/16	3 5/8	1/4	1 1/4	1 1/2	11/16	5
4SS	1/2	2 1/16	2 3/8	4 3/8	3 7/16	3 5/8	1/4	1 1/4	1 1/2	11/16	5
5SS	1/2	2	2 3/8	4 3/8	3 5/8	3 13/16	1/4	1 1/4	1 1/2	11/16	5
6SS	1/2	2 1/8	3 1/2	5 1/2	3 13/16	4	1/4	1 1/4	1 1/2	11/16	7
7SS	5/8	2 1/16	3 1/2	5 1/2	3 3/4	3 15/16	1/4	1 1/4	1 1/2	13/16	7
8SS	5/8	2 1/4	3 1/2	5 1/2	3 15/16	4 3/16	1/4	1 1/4	1 1/2	13/16	8
9SS	3/4	2 3/8	4 1/2	6 1/2	4 5/16	4 9/16	3/8	1 1/4	1 1/2	15/16	13
10SS	3/4	2 9/16	4 1/2	7	4 1/2	4 3/4	3/8	1 1/4	1 1/2	15/16	17
11SS	3/4	2 15/16	6 5/8	9	5 1/8	5 1/2	3/8	1 1/4	1 1/2	15/16	32
12SS	1	3	6 5/8	9	5 3/8	5 3/4	1/2	1 1/2	2	1 1/4	34
13SS	1	3 5/16	8 5/8	12	5 7/8	6 1/4	1/2	1 1/2	2	1 1/4	71
14SS	1 1/4	3 1/2	8 5/8	12	6 1/16	6 7/16	5/8	2	3	1 1/2	76
15SS	1 1/4	3 13/16	10 3/4	14 1/2	6 1/2	7	5/8	2	3	1 1/2	122
16SS	1 1/4	4 5/16	10 3/4	14 1/2	7 1/4	7 3/4	5/8	2	3	1 1/2	137
17SS	1 1/2	4 3/8	12 3/4	16 1/2	7 7/16	7 15/16	3/4	2 1/2	3	1 3/4	201
18SS	2	5 9/16	14	19	8 7/8	9 5/8	3/4	3	4	2 3/8	301
19SS	2 1/4	5 7/8	16	21	9 7/8	10 5/8	3/4	3	4 1/2	2 5/8	414
20SS	2 3/4	6 3/8	18	23	11	11 3/4	1	4	4 1/2	3 1/8	543
21SS	2 3/4	6 7/16	20	25	11 3/16	11 15/16	1	4	4 1/2	3 1/8	657
22SS	3	7 5/8	24	29	12 3/4	13 3/4	1	4	5	3 3/8	982
23SS	3	8 1/16	26	31	13 7/16	14 7/16	1	4	5	3 3/8	1213

Type BT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

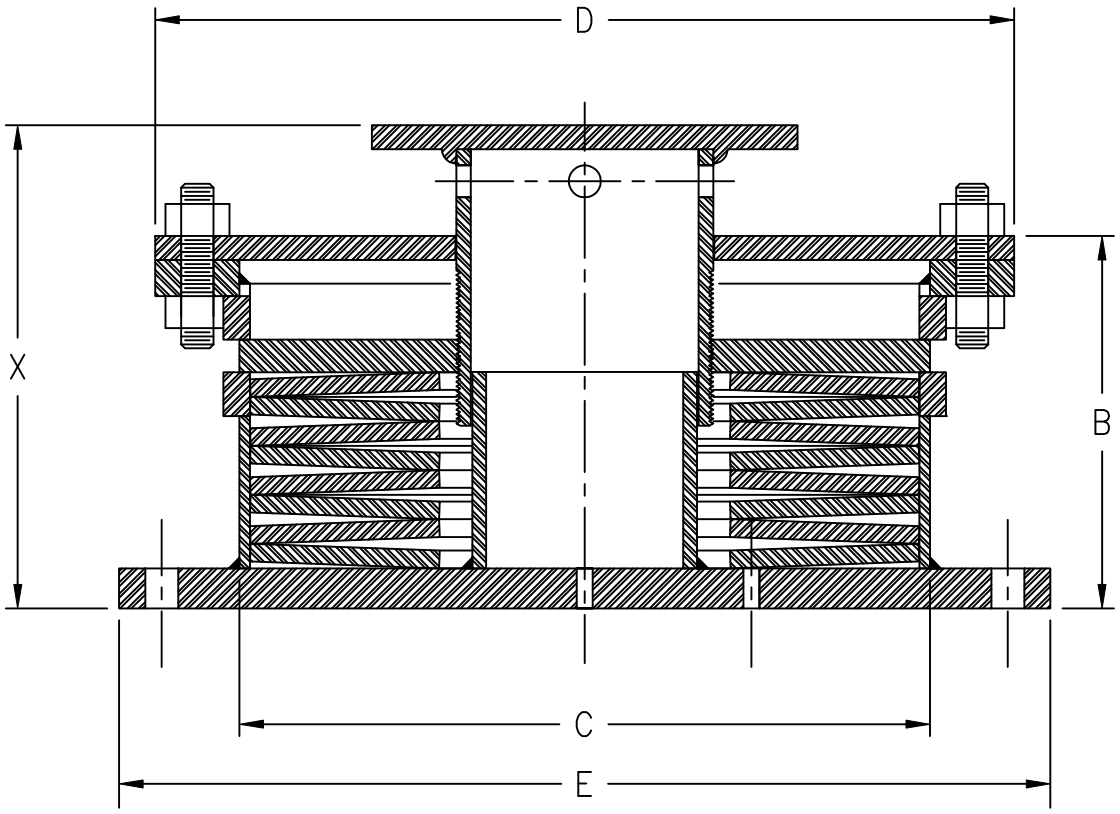
Figure 125 SS Type CT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. D	Length X Min	Length X Max	Lug Thk. T	clevis opening S	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1SS	1/2	1 15/16	1 7/8	3 7/8	3 3/8	3 9/16	1/4	7/8	1 1/4	1 1/2	11/16	3
2SS	1/2	2 1/16	2 3/8	4 3/8	3 1/2	3 11/16	1/4	7/8	1 1/4	1 1/2	11/16	5
3SS	1/2	2 1/16	2 3/8	4 3/8	3 7/16	3 5/8	1/4	7/8	1 1/4	1 1/2	11/16	5
4SS	1/2	2 1/16	2 3/8	4 3/8	3 7/16	3 5/8	1/4	7/8	1 1/4	1 1/2	11/16	5
5SS	1/2	2	2 3/8	4 3/8	3 5/8	3 13/16	1/4	7/8	1 1/4	1 1/2	11/16	5
6SS	1/2	2 1/8	3 1/2	5 1/2	3 13/16	4	1/4	1 1/16	1 1/4	1 1/2	11/16	7
7SS	5/8	2 1/16	3 1/2	5 1/2	3 3/4	3 15/16	1/4	1 1/16	1 1/4	1 1/2	13/16	7
8SS	5/8	2 1/4	3 1/2	5 1/2	3 15/16	4 3/16	1/4	1 1/16	1 1/4	1 1/2	13/16	8
9SS	3/4	2 3/8	4 1/2	6 1/2	4 5/16	4 9/16	3/8	1 1/4	1 1/4	1 1/2	15/16	13
10SS	3/4	2 9/16	4 1/2	7	4 1/2	4 3/4	3/8	1 1/4	1 1/4	1 1/2	15/16	17
11SS	3/4	2 15/16	6 5/8	9	5 1/8	5 1/2	3/8	1 1/4	1 1/4	1 1/2	15/16	32
12SS	1	3	6 5/8	9	5 3/8	5 3/4	1/2	1 5/8	1 1/2	2	1 1/4	34
13SS	1	3 5/16	8 5/8	12	5 7/8	6 1/4	1/2	1 5/8	1 1/2	2	1 1/4	71
14SS	1 1/4	3 1/2	8 5/8	12	6 1/16	6 7/16	5/8	2	2	3	1 1/2	76
15SS	1 1/4	3 13/16	10 3/4	14 1/2	6 1/2	7	5/8	2	2	3	1 1/2	122
16SS	1 1/4	4 5/16	10 3/4	14 1/2	7 1/4	7 3/4	3/4	2 3/8	2 1/2	3	1 3/4	137
17SS	1 1/2	4 3/8	12 3/4	16 1/2	7 7/16	7 15/16	3/4	2 5/8	2 1/2	3	2	201
18SS	2	5 9/16	14	19	8 7/8	9 5/8	3/4	2 7/8	3	4	2 3/8	301
19SS	2 1/4	5 7/8	16	21	9 7/8	10 5/8	3/4	3 1/8	3	4 1/2	2 5/8	414
20SS	2 3/4	6 3/8	18	23	11	11 3/4	1	3 3/8	4	4 1/2	3 1/8	543
21SS	2 3/4	6 7/16	20	25	11 3/16	11 15/16	1	3 5/8	4	4 1/2	3 1/8	657
22SS	3	7 5/8	24	29	12 3/4	13 3/4	1	3 7/8	4	5	3 3/8	982
23SS	3	8 1/16	26	31	13 7/16	14 7/16	1	3 7/8	4	5	3 3/8	1213

Type CT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

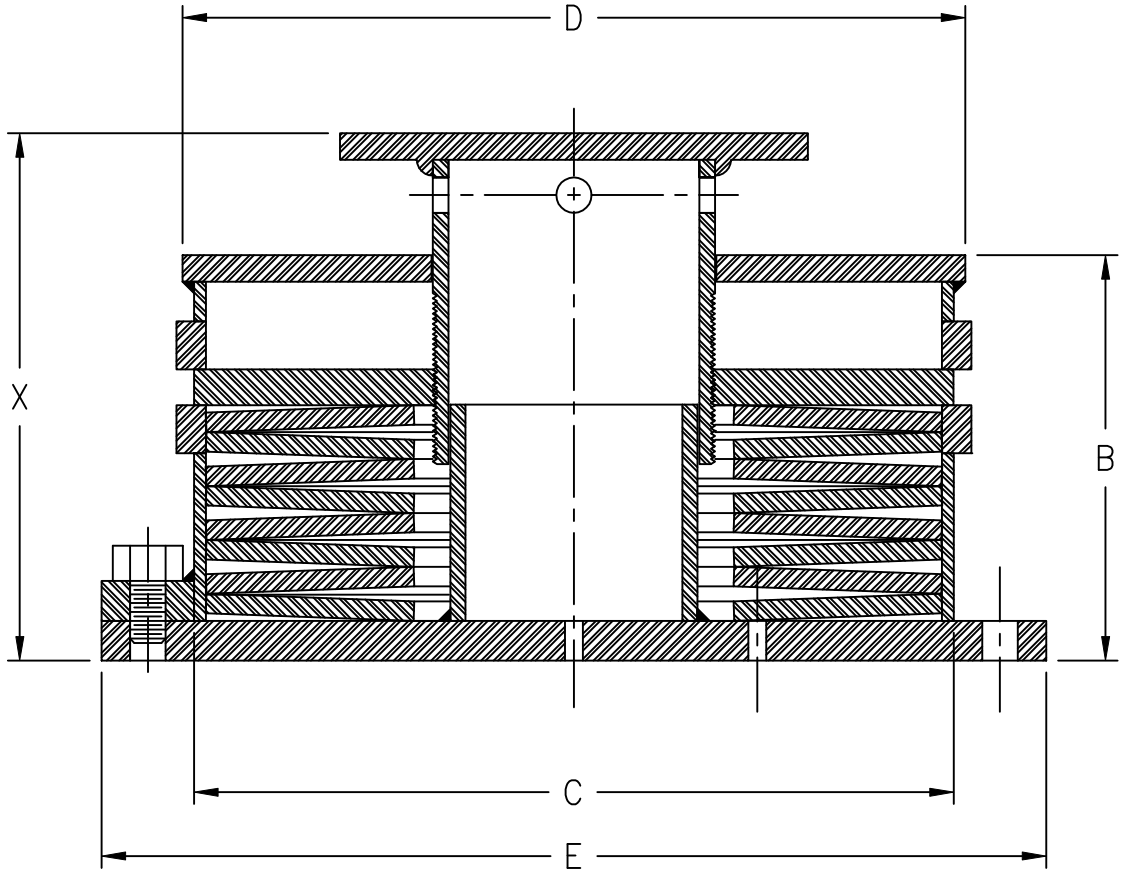
Figure 250 SS Type F



Item SIZE	Casing Length B	Casing Diam. C	Cover Plate Diam. D	Base Plate Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Base Plate Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1SS	3 1/8	1 7/8	3 7/8	3 7/8	3	3/8	3/16	4 7/8	5 1/4	0.8400	2	3/16	4
2SS	3 5/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 1/8	5 1/2	1.0500	3 7/8	3/16	6
3SS	3 5/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 1/8	5 1/2	1.0500	3 7/8	3/16	6
4SS	3 5/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 1/8	5 1/2	1.0500	3 7/8	3/16	6
5SS	3 1/4	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 3/16	5 9/16	1.0500	3 7/8	3/16	6
6SS	3 3/8	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	5 3/8	5 3/4	1.6600	3 7/8	3/16	10
7SS	3 5/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	5 1/4	5 5/8	1.6600	3 7/8	3/16	10
8SS	3 1/2	3 1/2	5 1/2	5 1/2	4 5/8	3/8	1/4	5 7/16	5 7/8	1.6600	3 7/8	3/16	11
9SS	3 7/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	1/4	5 9/16	6	1.9000	3 7/8	3/16	16
10SS	3 5/8	4 1/2	7	7	5 15/16	1/2	1/4	5 11/16	6 3/16	2 3/8	5 3/4	3/16	20
11SS	3 13/16	6 5/8	9	9	8	1/2	1/4	6	6 5/8	3 1/2	6 3/8	1/4	38
12SS	4 1/8	6 5/8	9	9	8	1/2	3/8	6 1/2	7 1/8	3 1/2	6 3/8	3/8	44
13SS	4 9/16	8 5/8	12	12	10 1/2	3/4	1/2	7 1/8	7 7/8	3 1/2	6 3/8	3/8	86
14SS	4 11/16	8 5/8	12	12	10 1/2	3/4	1/2	7 1/4	8	4 1/2	8 3/8	3/8	85
15SS	4 7/8	10 3/4	14 1/2	14 1/2	13	3/4	1/2	7 1/2	8 1/2	4 1/2	8 3/8	3/8	127
16SS	5 1/8	10 3/4	14 1/2	14 1/2	13	3/4	1/2	7 11/16	8 11/16	5 9/16	8 3/8	3/8	136
17SS	4 15/16	12 3/4	16 1/2	16 1/2	15	3/4	5/8	7 9/16	8 9/16	5 9/16	8 3/8	3/8	188
18SS	5 7/8	14	19	19	17	3/4	5/8	8 3/4	10 1/8	5 9/16	8 3/8	3/8	272
19SS	6 7/16	16	21	21	19	3/4	3/4	9 3/8	10 3/4	6 5/8	12 1/2	3/8	366
20SS	5 5/8	18	23	23	21	1	3/4	8 3/4	10 1/4	8 5/8	12 1/2	3/8	422
21SS	6	20	25	25	23	1	3/4	9 9/16	11 1/16	8 5/8	12 1/2	3/4	534
22SS	7 1/8	24	29	29	27	1	3/4	10 7/8	12 5/8	10 3/4	12 1/2	3/4	786
23SS	7 3/8	26	31	31	29	1	3/4	11 3/16	12 15/16	10 3/4	12 1/2	3/4	907

Type F is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

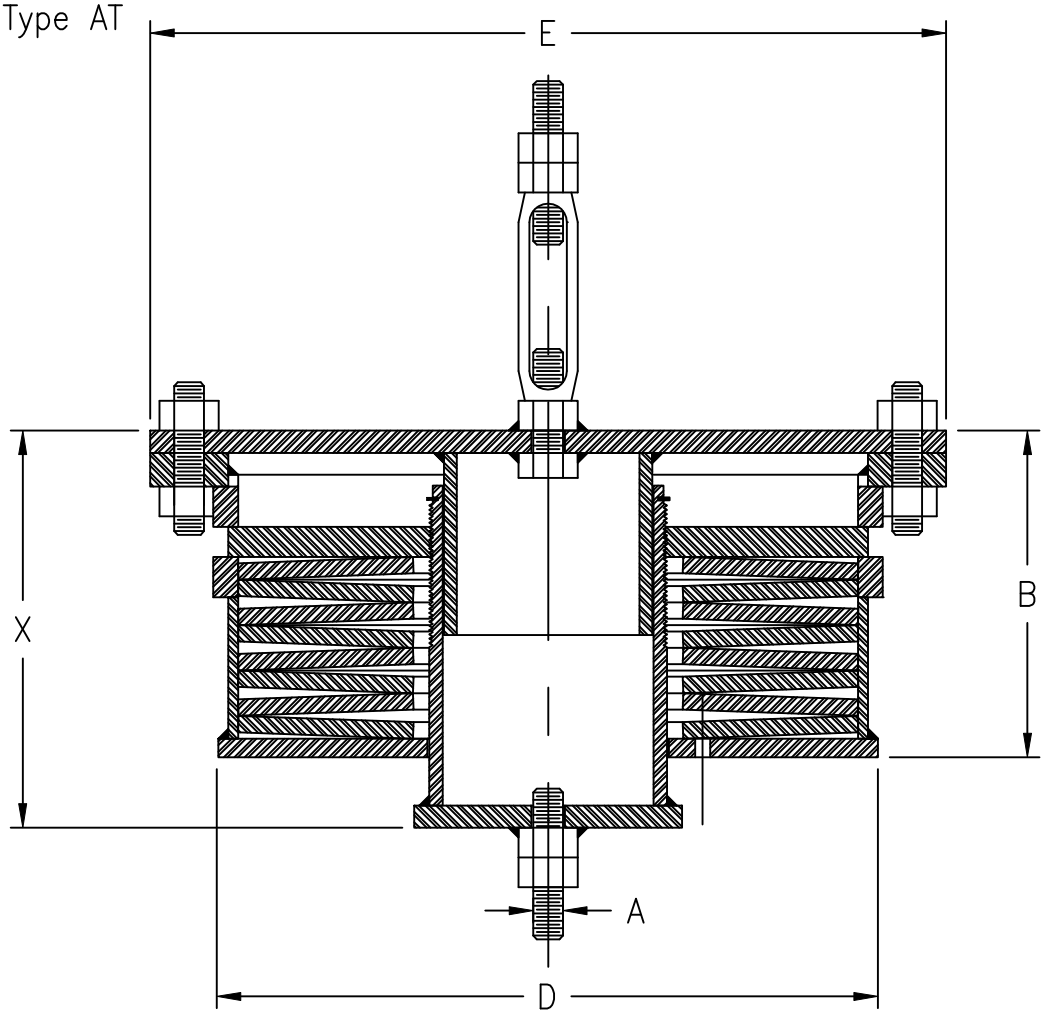
Figure 250 SS Type FW



Item SIZE	Casing Length B	Casing Diam. C	Flange Diam. D	Bottom Flange Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Bottom Flange Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1SS	3 1/8	1 7/8	3 7/8	3 7/8	3	3/8	3/16	4 7/8	5 1/16	0.8400	2	3/16	4
2SS	3 5/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 1/8	5 5/16	1.0500	3 7/8	3/16	6
3SS	3 5/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 1/8	5 5/16	1.0500	3 7/8	3/16	6
4SS	3 5/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 1/8	5 5/16	1.0500	3 7/8	3/16	6
5SS	3 1/4	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	5 3/16	5 3/8	1.0500	3 7/8	3/16	6
6SS	3 3/8	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	5 3/8	5 9/16	1.6600	3 7/8	3/16	10
7SS	3 5/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	5 1/4	5 7/16	1.6600	3 7/8	3/16	10
8SS	3 1/2	3 1/2	5 1/2	5 1/2	4 5/8	3/8	1/4	5 7/16	5 11/16	1.6600	3 7/8	3/16	11
9SS	3 7/16	4 1/2	6 1/2	6 1/2	5 5/8	3/8	1/4	5 9/16	5 13/16	1.9000	3 7/8	3/16	16
10SS	3 5/8	4 1/2	7	7	5 15/16	1/2	1/4	5 5/8	5 7/8	2 3/8	5 3/4	3/16	20
11SS	3 13/16	6 5/8	9	9	8	1/2	1/4	5 15/16	6 5/16	3 1/2	6 3/8	1/4	37
12SS	4 1/8	6 5/8	9	9	8	1/2	3/8	6 1/2	6 7/8	3 1/2	6 3/8	3/8	44
13SS	4 9/16	8 5/8	12	12	10 1/2	3/4	1/2	7 1/8	7 1/2	3 1/2	6 3/8	3/8	86
14SS	4 11/16	8 5/8	12	12	10 1/2	3/4	1/2	7 1/4	7 5/8	4 1/2	8 3/8	3/8	84
15SS	4 7/8	10 3/4	14 1/2	14 1/2	13	3/4	1/2	7 3/8	7 7/8	4 1/2	8 3/8	3/8	127
16SS	5 1/8	10 3/4	14 1/2	14 1/2	13	3/4	1/2	7 9/16	8 1/16	5 9/16	8 3/8	3/8	135
17SS	4 15/16	12 3/4	16 1/2	16 1/2	15	3/4	5/8	7 9/16	8 1/16	5 9/16	8 3/8	3/8	188
18SS	5 7/8	14	19	19	17	3/4	5/8	8 3/4	9 1/2	5 9/16	8 3/8	3/8	271
19SS	6 7/16	16	21	21	19	3/4	3/4	9 3/8	10 1/8	6 5/8	12 1/2	3/8	365
20SS	5 5/8	18	23	23	21	1	3/4	8 3/4	9 1/2	8 5/8	12 1/2	3/8	420
21SS	6	20	25	25	23	1	3/4	9 9/16	10 5/16	8 5/8	12 1/2	3/4	532
22SS	7 1/8	24	29	29	27	1	3/4	10 7/8	11 7/8	10 3/4	12 1/2	3/4	783
23SS	7 3/8	26	31	31	29	1	3/4	11 3/16	12 3/16	10 3/4	12 1/2	3/4	904

Type FW is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

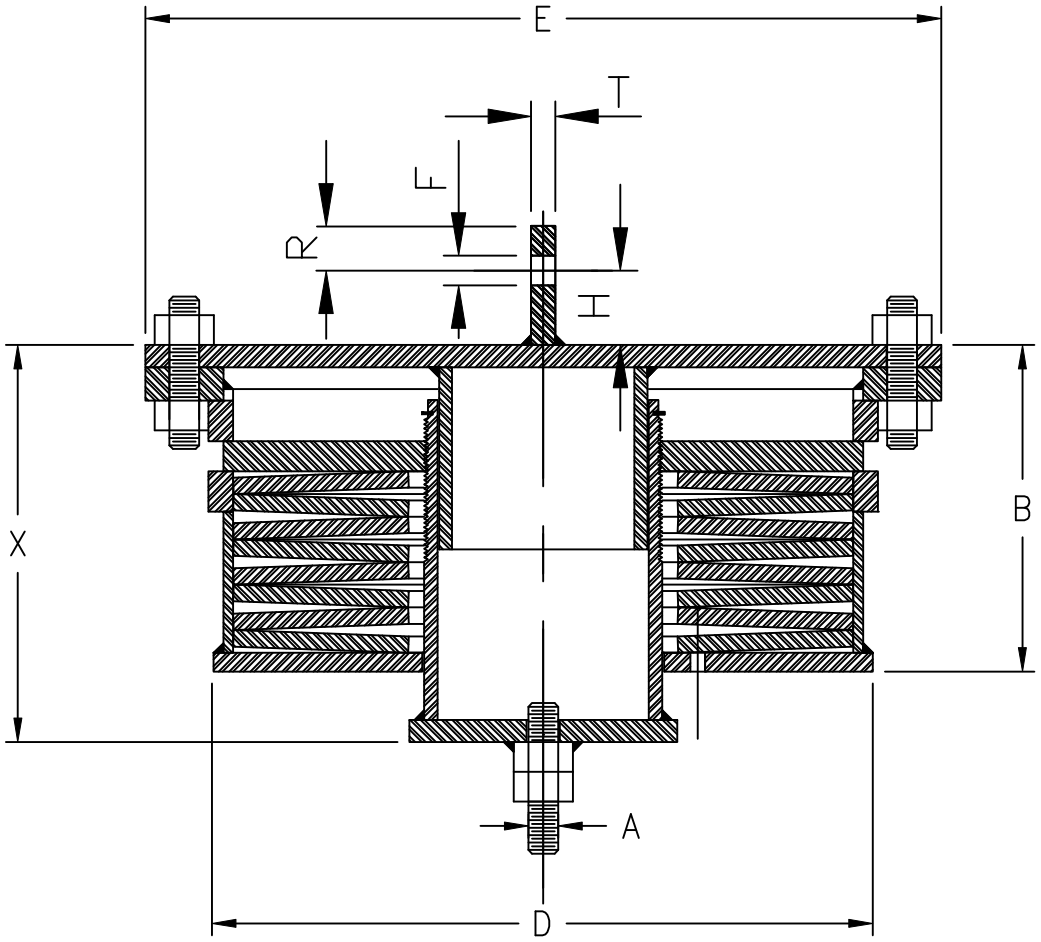
Figure 250 SS Type AT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. E	Length X Min	Length X Max	Wgt lbs. (est.)
1SS	1/2	3 1/8	1 7/8	3 7/8	4 7/8	5 1/16	4
2SS	1/2	3 5/16	2 3/8	4 3/8	5 1/8	5 5/16	6
3SS	1/2	3 5/16	2 3/8	4 3/8	5 1/8	5 5/16	6
4SS	1/2	3 5/16	2 3/8	4 3/8	5 1/8	5 5/16	6
5SS	1/2	3 1/4	2 3/8	4 3/8	5 3/16	5 3/8	6
6SS	1/2	3 7/16	3 1/2	5 1/2	5 1/2	5 11/16	10
7SS	5/8	3 3/8	3 1/2	5 1/2	5 3/8	5 9/16	10
8SS	5/8	3 9/16	3 1/2	5 1/2	5 9/16	5 13/16	10
9SS	3/4	3 5/8	4 1/2	6 1/2	5 15/16	6 3/16	16
10SS	3/4	3 7/8	4 1/2	7	6 1/8	6 3/8	20
11SS	3/4	4 3/16	6 5/8	9	6 13/16	7 3/16	40
12SS	1	4 3/8	6 5/8	9	7 1/8	7 1/2	42
13SS	1	4 13/16	8 5/8	12	7 3/4	8 1/8	87
14SS	1 1/4	5 1/16	8 5/8	12	8	8 3/8	91
15SS	1 1/4	5 1/4	10 3/4	14 1/2	8 3/8	8 7/8	144
16SS	1 1/4	5 7/8	10 3/4	14 1/2	9 3/16	9 11/16	160
17SS	1 1/2	5 13/16	12 3/4	16 1/2	9 3/16	9 11/16	231
18SS	2	6 7/8	14	19	10 5/8	11 3/8	340
19SS	2 1/4	7 9/16	16	21	12	12 3/4	469
20SS	2 3/4	7 1/8	18	23	12 1/8	12 7/8	590
21SS	2 3/4	7 1/2	20	25	12 11/16	13 7/16	725
22SS	3	9	24	29	14 5/8	15 5/8	1101
23SS	3	9 5/8	26	31	15 9/16	16 9/16	1355

Type AT is designed for supporting from a member by placing a threaded rod in the top turnbuckle and locking the jam nut. Adjustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

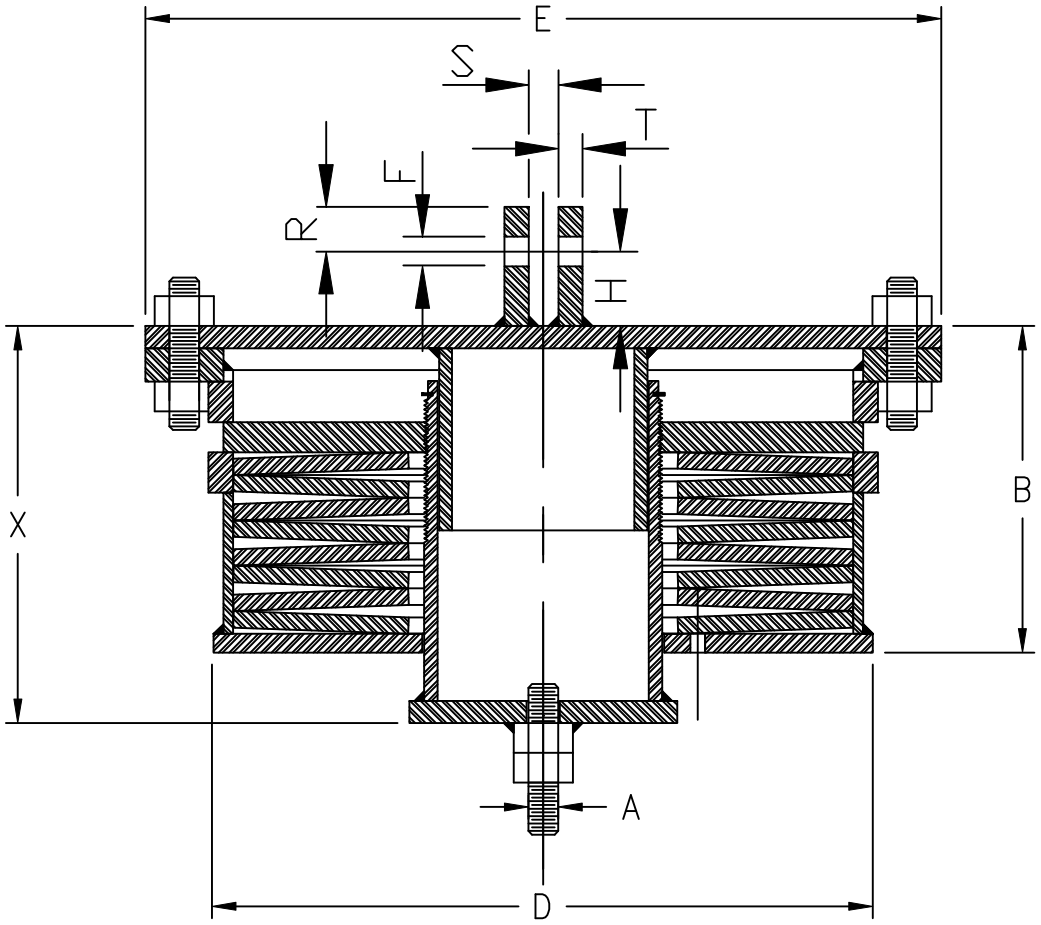
Figure 250 SS Type BT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. D	Flange Diam. E	Length X Min	Length X Max	Lug Thk. T	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1SS	1/2	3 1/8	1 7/8	3 7/8	4 7/8	5 1/16	1/4	1 1/4	1 1/2	11/16	4
2SS	1/2	3 5/16	2 3/8	4 3/8	5 1/8	5 5/16	1/4	1 1/4	1 1/2	11/16	6
3SS	1/2	3 5/16	2 3/8	4 3/8	5 1/8	5 5/16	1/4	1 1/4	1 1/2	11/16	6
4SS	1/2	3 5/16	2 3/8	4 3/8	5 1/8	5 5/16	1/4	1 1/4	1 1/2	11/16	6
5SS	1/2	3 1/4	2 3/8	4 3/8	5 3/16	5 3/8	1/4	1 1/4	1 1/2	11/16	6
6SS	1/2	3 7/16	3 1/2	5 1/2	5 1/2	5 11/16	1/4	1 1/4	1 1/2	11/16	10
7SS	5/8	3 3/8	3 1/2	5 1/2	5 3/8	5 9/16	1/4	1 1/4	1 1/2	13/16	10
8SS	5/8	3 9/16	3 1/2	5 1/2	5 9/16	5 13/16	1/4	1 1/4	1 1/2	13/16	10
9SS	3/4	3 5/8	4 1/2	6 1/2	5 15/16	6 3/16	3/8	1 1/4	1 1/2	15/16	16
10SS	3/4	3 7/8	4 1/2	7	6 1/8	6 3/8	3/8	1 1/4	1 1/2	15/16	20
11SS	3/4	4 3/16	6 5/8	9	6 13/16	7 3/16	3/8	1 1/4	1 1/2	15/16	40
12SS	1	4 3/8	6 5/8	9	7 1/8	7 1/2	1/2	1 1/2	2	1 1/4	42
13SS	1	4 13/16	8 5/8	12	7 3/4	8 1/8	1/2	1 1/2	2	1 1/4	87
14SS	1 1/4	5 1/16	8 5/8	12	8	8 3/8	5/8	2	3	1 1/2	91
15SS	1 1/4	5 1/4	10 3/4	14 1/2	8 3/8	8 7/8	5/8	2	3	1 1/2	144
16SS	1 1/4	5 7/8	10 3/4	14 1/2	9 3/16	9 11/16	5/8	2	3	1 1/2	160
17SS	1 1/2	5 13/16	12 3/4	16 1/2	9 3/16	9 11/16	3/4	2 1/2	3	1 3/4	231
18SS	2	6 7/8	14	19	10 5/8	11 3/8	3/4	3	4	2 3/8	340
19SS	2 1/4	7 9/16	16	21	12	12 3/4	3/4	3	4 1/2	2 5/8	469
20SS	2 3/4	7 1/8	18	23	12 1/8	12 7/8	1	4	4 1/2	3 1/8	590
21SS	2 3/4	7 1/2	20	25	12 11/16	13 7/16	1	4	4 1/2	3 1/8	725
22SS	3	9	24	29	14 5/8	15 5/8	1	4	5	3 3/8	1101
23SS	3	9 5/8	26	31	15 9/16	16 9/16	1	4	5	3 3/8	1355

Type BT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

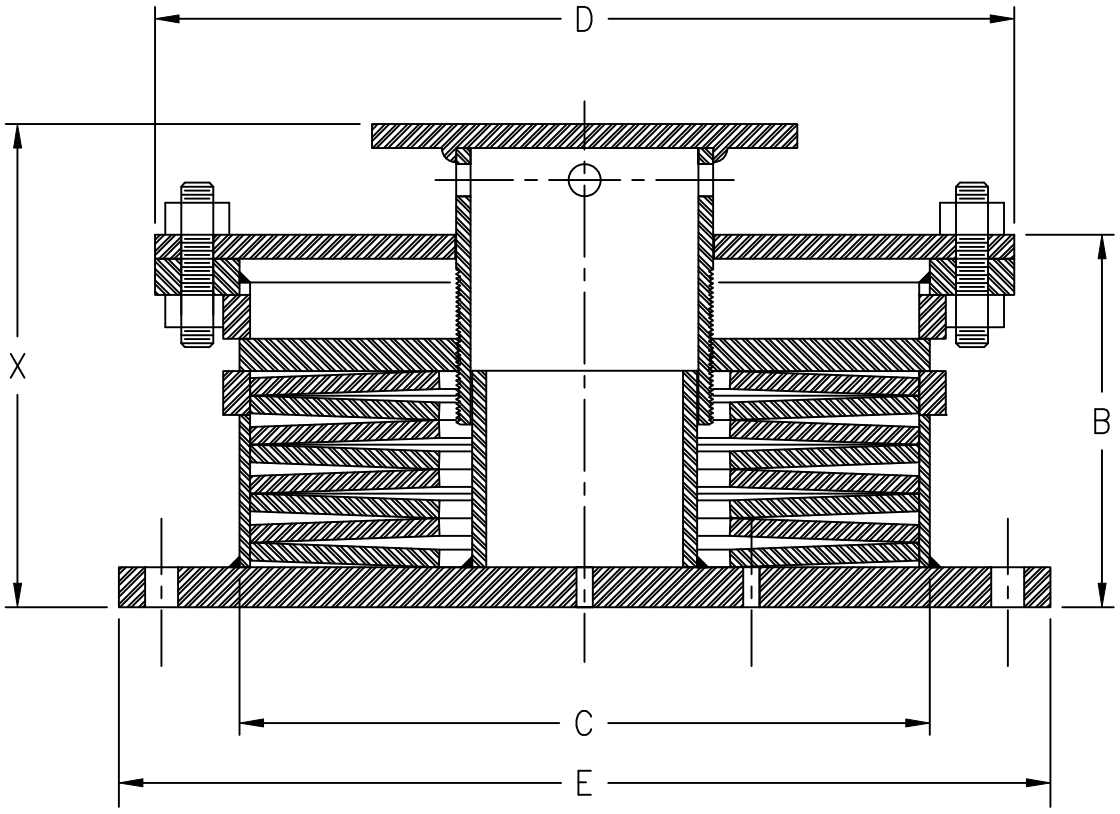
Figure 250 SS Type CT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. D	Length X Min	Length X Max	Lug Thk. T	clevis opening S	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1SS	1/2	3 1/8	1 7/8	3 7/8	4 7/8	5 1/16	1/4	7/8	1 1/4	1 1/2	11/16	4
2SS	1/2	3 5/16	2 3/8	4 3/8	5 1/8	5 5/16	1/4	7/8	1 1/4	1 1/2	11/16	6
3SS	1/2	3 5/16	2 3/8	4 3/8	5 1/8	5 5/16	1/4	7/8	1 1/4	1 1/2	11/16	6
4SS	1/2	3 5/16	2 3/8	4 3/8	5 1/8	5 5/16	1/4	7/8	1 1/4	1 1/2	11/16	6
5SS	1/2	3 1/4	2 3/8	4 3/8	5 3/16	5 3/8	1/4	7/8	1 1/4	1 1/2	11/16	6
6SS	1/2	3 7/16	3 1/2	5 1/2	5 1/2	5 11/16	1/4	1 1/16	1 1/4	1 1/2	11/16	10
7SS	5/8	3 3/8	3 1/2	5 1/2	5 3/8	5 9/16	1/4	1 1/16	1 1/4	1 1/2	13/16	10
8SS	5/8	3 9/16	3 1/2	5 1/2	5 9/16	5 13/16	1/4	1 1/16	1 1/4	1 1/2	13/16	10
9SS	3/4	3 5/8	4 1/2	6 1/2	5 15/16	6 3/16	3/8	1 1/4	1 1/4	1 1/2	15/16	16
10SS	3/4	3 7/8	4 1/2	7	6 1/8	6 3/8	3/8	1 1/4	1 1/4	1 1/2	15/16	20
11SS	3/4	4 3/16	6 5/8	9	6 13/16	7 3/16	3/8	1 1/4	1 1/4	1 1/2	15/16	40
12SS	1	4 3/8	6 5/8	9	7 1/8	7 1/2	1/2	1 5/8	1 1/2	2	1 1/4	42
13SS	1	4 13/16	8 5/8	12	7 3/4	8 1/8	1/2	1 5/8	1 1/2	2	1 1/4	87
14SS	1 1/4	5 1/16	8 5/8	12	8	8 3/8	5/8	2	2	3	1 1/2	91
15SS	1 1/4	5 1/4	10 3/4	14 1/2	8 3/8	8 7/8	5/8	2	2	3	1 1/2	144
16SS	1 1/4	5 7/8	10 3/4	14 1/2	9 3/16	9 11/16	3/4	2 3/8	2 1/2	3	1 3/4	160
17SS	1 1/2	5 13/16	12 3/4	16 1/2	9 3/16	9 11/16	3/4	2 5/8	2 1/2	3	2	231
18SS	2	6 7/8	14	19	10 5/8	11 3/8	3/4	2 7/8	3	4	2 3/8	340
19SS	2 1/4	7 9/16	16	21	12	12 3/4	3/4	3 1/8	3	4 1/2	2 5/8	469
20SS	2 3/4	7 1/8	18	23	12 1/8	12 7/8	1	3 3/8	4	4 1/2	3 1/8	590
21SS	2 3/4	7 1/2	20	25	12 11/16	13 7/16	1	3 5/8	4	4 1/2	3 1/8	725
22SS	3	9	24	29	14 5/8	15 5/8	1	3 7/8	4	5	3 3/8	1101
23SS	3	9 5/8	26	31	15 9/16	16 9/16	1	3 7/8	4	5	3 3/8	1355

Type CT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

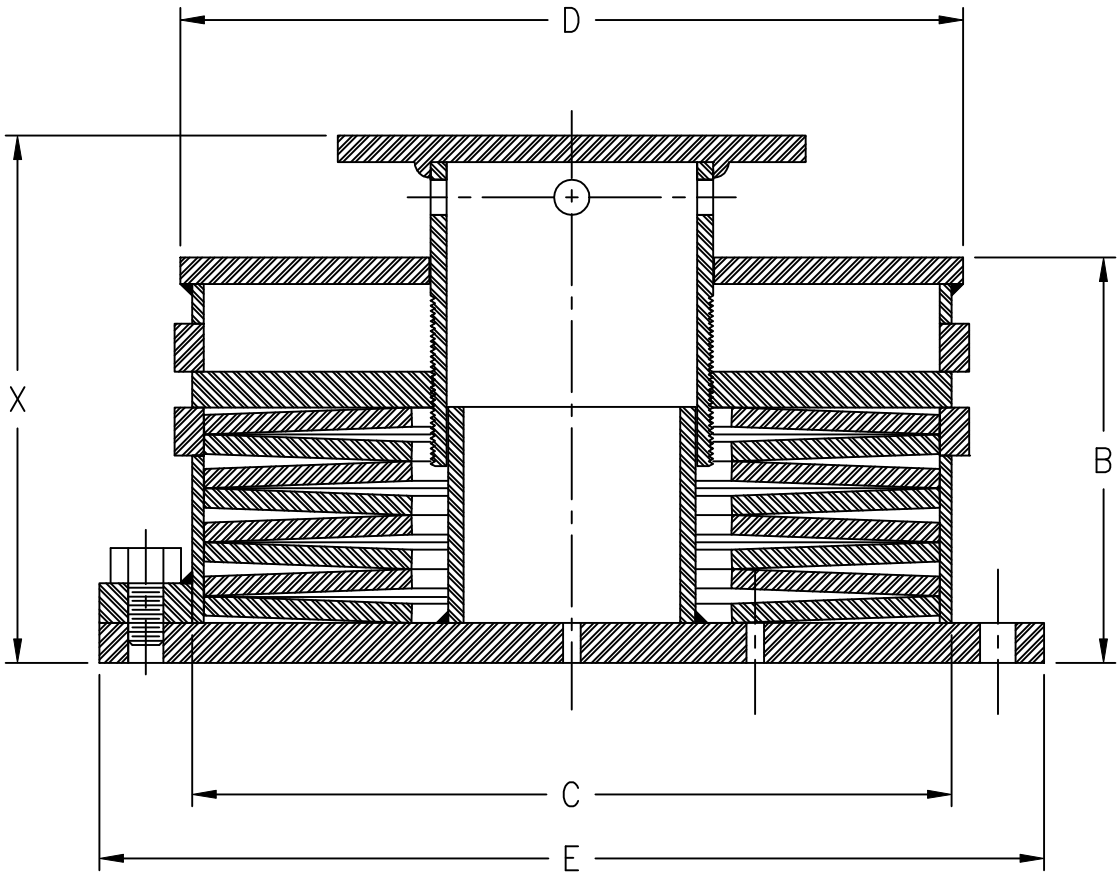
Figure 375 SS Type F



Item SIZE	Casing Length B	Casing Diam. C	Cover Plate Diam. D	Base Plate Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Base Plate Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1SS	4 5/16	1 7/8	3 7/8	3 7/8	3	3/8	3/16	6 7/16	6 13/16	0.8400	2	3/16	5
2SS	4 5/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 13/16	7 3/16	1.0500	3 7/8	3/16	7
3SS	4 5/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 3/4	7 1/8	1.0500	3 7/8	3/16	7
4SS	4 5/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 3/4	7 1/8	1.0500	3 7/8	3/16	7
5SS	4 1/2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 13/16	7 3/16	1.0500	3 7/8	3/16	7
6SS	4 11/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	7 1/16	7 7/16	1.6600	3 7/8	3/16	13
7SS	4 9/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	6 15/16	7 5/16	1.6600	3 7/8	3/16	13
8SS	4 3/4	3 1/2	5 1/2	5 1/2	4 5/8	3/8	1/4	7 1/16	7 1/2	1.6600	3 7/8	3/16	14
9SS	4 3/4	4 1/2	6 1/2	6 1/2	5 5/8	3/8	1/4	7 1/8	7 9/16	1.9000	3 7/8	3/16	21
10SS	4 15/16	4 1/2	7	7	5 15/16	1/2	1/4	7 3/8	7 7/8	2 3/8	5 3/4	3/16	25
11SS	5 1/8	6 5/8	9	9	8	1/2	1/4	7 5/8	8 1/4	3 1/2	6 3/8	1/4	47
12SS	5 1/2	6 5/8	9	9	8	1/2	3/8	8 5/16	8 15/16	3 1/2	6 3/8	3/8	54
13SS	6	8 5/8	12	12	10 1/2	3/4	1/2	9	9 3/4	3 1/2	6 3/8	3/8	104
14SS	6 3/16	8 5/8	12	12	10 1/2	3/4	1/2	9 3/16	9 15/16	4 1/2	8 3/8	3/8	101
15SS	6 3/8	10 3/4	14 1/2	14 1/2	13	3/4	1/2	9 3/8	10 3/8	4 1/2	8 3/8	3/8	152
16SS	6 5/8	10 3/4	14 1/2	14 1/2	13	3/4	1/2	9 11/16	10 11/16	5 9/16	8 3/8	3/8	165
17SS	6 5/16	12 3/4	16 1/2	16 1/2	15	3/4	5/8	9 3/8	10 3/8	5 9/16	8 3/8	3/8	224
18SS	7 7/16	14	19	19	17	3/4	5/8	10 11/16	12 1/16	5 9/16	8 3/8	3/8	319
19SS	8 3/16	16	21	21	19	3/4	3/4	11 5/8	13	6 5/8	12 1/2	3/8	430
20SS	6 15/16	18	23	23	21	1	3/4	10 7/16	11 15/16	8 5/8	12 1/2	3/8	483
21SS	7 1/2	20	25	25	23	1	3/4	11 7/16	12 15/16	8 5/8	12 1/2	3/4	618
22SS	8 7/8	24	29	29	27	1	3/4	13 1/8	14 7/8	10 3/4	12 1/2	3/4	927
23SS	9 5/16	26	31	31	29	1	3/4	13 11/16	15 7/16	10 3/4	12 1/2	3/4	1072

Type F is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

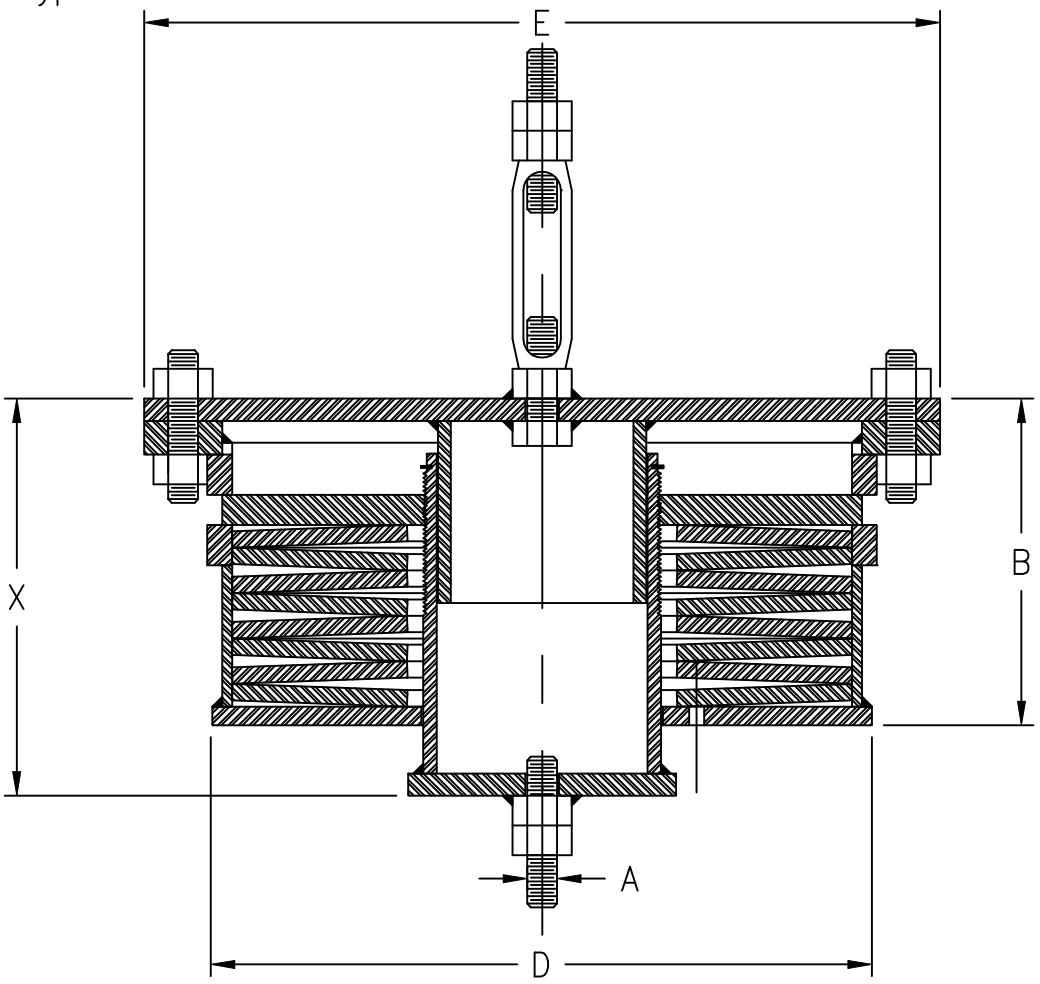
Figure 375 SS Type FW



Item SIZE	Casing Length B	Casing Diam. C	Flange Diam. D	Bottom Flange Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Bottom Flange Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1SS	4 5/16	1 7/8	3 7/8	3 7/8	3	3/8	3/16	6 7/16	6 5/8	0.8400	2	3/16	5
2SS	4 5/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 13/16	7	1.0500	3 7/8	3/16	7
3SS	4 5/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 3/4	6 15/16	1.0500	3 7/8	3/16	7
4SS	4 5/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 3/4	6 15/16	1.0500	3 7/8	3/16	7
5SS	4 1/2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	6 13/16	7	1.0500	3 7/8	3/16	7
6SS	4 11/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	7 1/16	7 1/4	1.6600	3 7/8	3/16	13
7SS	4 9/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	6 15/16	7 1/8	1.6600	3 7/8	3/16	13
8SS	4 3/4	3 1/2	5 1/2	5 1/2	4 5/8	3/8	1/4	7 1/16	7 5/16	1.6600	3 7/8	3/16	14
9SS	4 3/4	4 1/2	6 1/2	6 1/2	5 5/8	3/8	1/4	7 1/8	7 3/8	1.9000	3 7/8	3/16	21
10SS	4 15/16	4 1/2	7	7	5 15/16	1/2	1/4	7 5/16	7 9/16	2 3/8	5 3/4	3/16	25
11SS	5 1/8	6 5/8	9	9	8	1/2	1/4	7 9/16	7 15/16	3 1/2	6 3/8	1/4	47
12SS	5 1/2	6 5/8	9	9	8	1/2	3/8	8 5/16	8 11/16	3 1/2	6 3/8	3/8	54
13SS	6	8 5/8	12	12	10 1/2	3/4	1/2	9	9 3/8	3 1/2	6 3/8	3/8	104
14SS	6 3/16	8 5/8	12	12	10 1/2	3/4	1/2	9 3/16	9 9/16	4 1/2	8 3/8	3/8	101
15SS	6 3/8	10 3/4	14 1/2	14 1/2	13	3/4	1/2	9 1/4	9 3/4	4 1/2	8 3/8	3/8	151
16SS	6 5/8	10 3/4	14 1/2	14 1/2	13	3/4	1/2	9 9/16	10 1/16	5 9/16	8 3/8	3/8	164
17SS	6 5/16	12 3/4	16 1/2	16 1/2	15	3/4	5/8	9 3/8	9 7/8	5 9/16	8 3/8	3/8	224
18SS	7 7/16	14	19	19	17	3/4	5/8	10 11/16	11 7/16	5 9/16	8 3/8	3/8	317
19SS	8 3/16	16	21	21	19	3/4	3/4	11 5/8	12 3/8	6 5/8	12 1/2	3/8	428
20SS	6 15/16	18	23	23	21	1	3/4	10 7/16	11 3/16	8 5/8	12 1/2	3/8	481
21SS	7 1/2	20	25	25	23	1	3/4	11 7/16	12 3/16	8 5/8	12 1/2	3/4	615
22SS	8 7/8	24	29	29	27	1	3/4	13 1/8	14 1/8	10 3/4	12 1/2	3/4	924
23SS	9 5/16	26	31	31	29	1	3/4	13 11/16	14 11/16	10 3/4	12 1/2	3/4	1069

Type FW is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

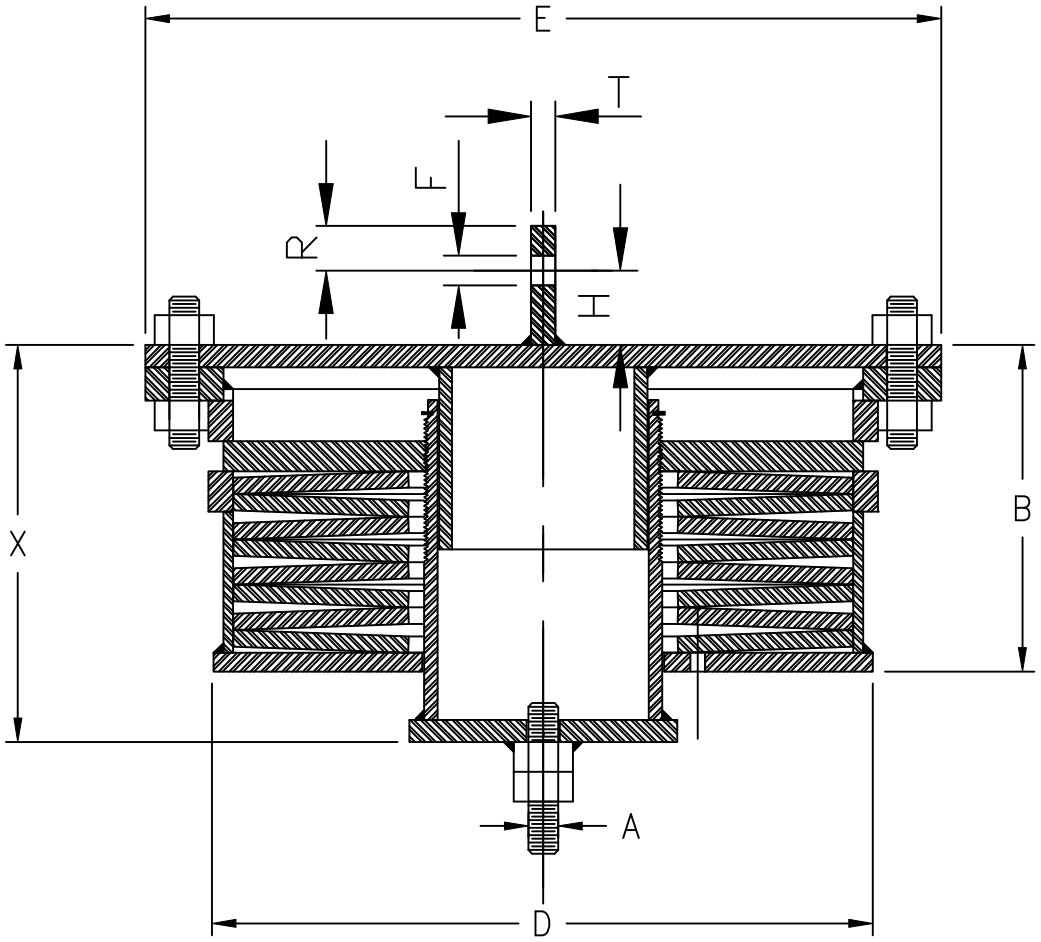
Figure 375 SS Type AT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. E	Length X Min	Length X Max	Wgt lbs. (est.)
1SS	1/2	4 5/16	1 7/8	3 7/8	6 7/16	6 5/8	5
2SS	1/2	4 5/8	2 3/8	4 3/8	6 13/16	7	7
3SS	1/2	4 5/8	2 3/8	4 3/8	6 3/4	6 15/16	7
4SS	1/2	4 5/8	2 3/8	4 3/8	6 3/4	6 15/16	7
5SS	1/2	4 1/2	2 3/8	4 3/8	6 13/16	7	7
6SS	1/2	4 3/4	3 1/2	5 1/2	7 3/16	7 3/8	12
7SS	5/8	4 5/8	3 1/2	5 1/2	7 1/16	7 1/4	12
8SS	5/8	4 13/16	3 1/2	5 1/2	7 3/16	7 7/16	13
9SS	3/4	4 15/16	4 1/2	6 1/2	7 1/2	7 3/4	20
10SS	3/4	5 3/16	4 1/2	7	7 13/16	8 1/16	24
11SS	3/4	5 1/2	6 5/8	9	8 7/16	8 13/16	47
12SS	1	5 3/4	6 5/8	9	8 15/16	9 5/16	50
13SS	1	6 1/4	8 5/8	12	9 5/8	10	102
14SS	1 1/4	6 9/16	8 5/8	12	9 15/16	10 5/16	105
15SS	1 1/4	6 3/4	10 3/4	14 1/2	10 1/4	10 3/4	167
16SS	1 1/4	7 3/8	10 3/4	14 1/2	11 3/16	11 11/16	183
17SS	1 1/2	7 3/16	12 3/4	16 1/2	11	11 1/2	261
18SS	2	8 7/16	14	19	12 9/16	13 5/16	381
19SS	2 1/4	9 5/16	16	21	14 1/4	15	524
20SS	2 3/4	8 7/16	18	23	13 13/16	14 9/16	640
21SS	2 3/4	9	20	25	14 9/16	15 5/16	797
22SS	3	10 3/4	24	29	16 7/8	17 7/8	1224
23SS	3	11 9/16	26	31	18 1/16	19 1/16	1501

Type AT is designed for supporting from a member by placing a threaded rod in the top turnbuckle and locking the jam nut. Adjustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

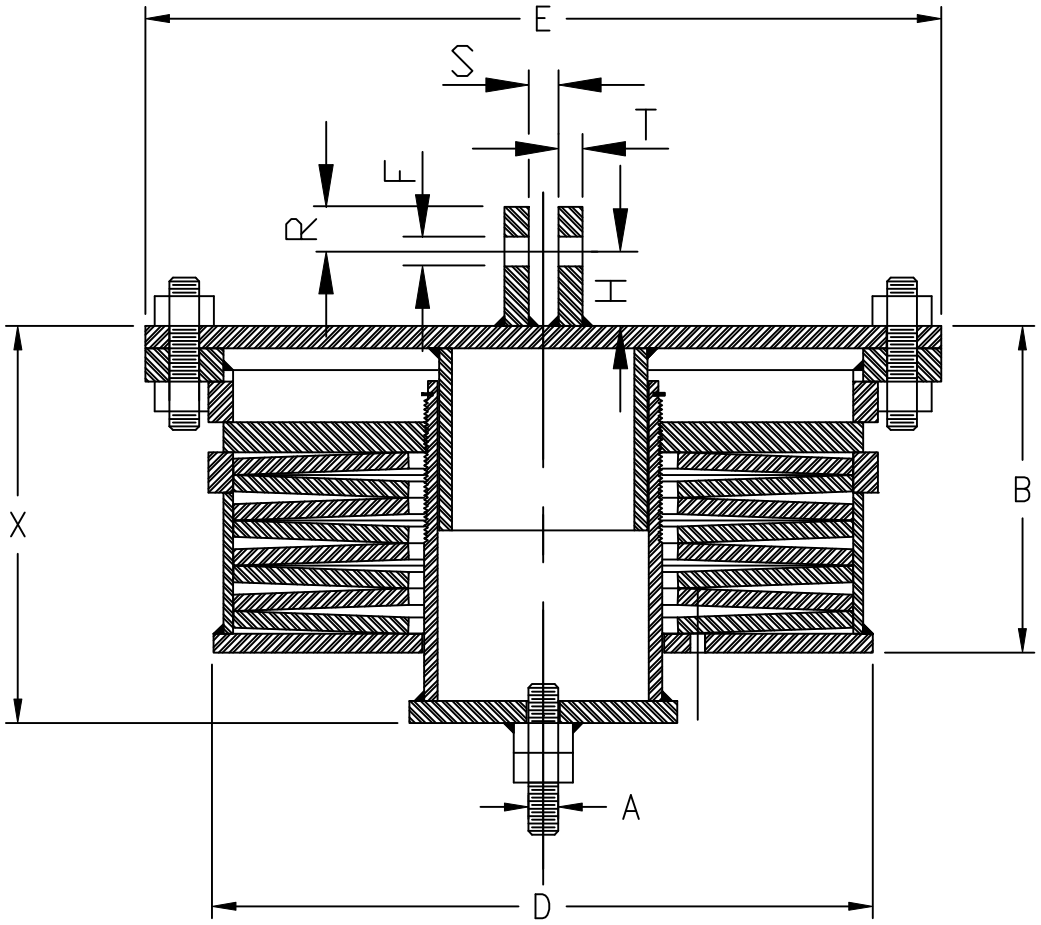
Figure 375 SS Type BT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. D	Flange Diam. E	Length X Min	Length X Max	Lug Thk. T	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1SS	1/2	4 5/16	1 7/8	3 7/8	6 7/16	6 5/8	1/4	1 1/4	1 1/2	11/16	5
2SS	1/2	4 5/8	2 3/8	4 3/8	6 13/16	7	1/4	1 1/4	1 1/2	11/16	7
3SS	1/2	4 5/8	2 3/8	4 3/8	6 3/4	6 15/16	1/4	1 1/4	1 1/2	11/16	7
4SS	1/2	4 5/8	2 3/8	4 3/8	6 3/4	6 15/16	1/4	1 1/4	1 1/2	11/16	7
5SS	1/2	4 1/2	2 3/8	4 3/8	6 13/16	7	1/4	1 1/4	1 1/2	11/16	7
6SS	1/2	4 3/4	3 1/2	5 1/2	7 3/16	7 3/8	1/4	1 1/4	1 1/2	11/16	12
7SS	5/8	4 5/8	3 1/2	5 1/2	7 1/16	7 1/4	1/4	1 1/4	1 1/2	13/16	12
8SS	5/8	4 13/16	3 1/2	5 1/2	7 3/16	7 7/16	1/4	1 1/4	1 1/2	13/16	13
9SS	3/4	4 15/16	4 1/2	6 1/2	7 1/2	7 3/4	3/8	1 1/4	1 1/2	15/16	20
10SS	3/4	5 3/16	4 1/2	7	7 13/16	8 1/16	3/8	1 1/4	1 1/2	15/16	24
11SS	3/4	5 1/2	6 5/8	9	8 7/16	8 13/16	3/8	1 1/4	1 1/2	15/16	47
12SS	1	5 3/4	6 5/8	9	8 15/16	9 5/16	1/2	1 1/2	2	1 1/4	50
13SS	1	6 1/4	8 5/8	12	9 5/8	10	1/2	1 1/2	2	1 1/4	102
14SS	1 1/4	6 9/16	8 5/8	12	9 15/16	10 5/16	5/8	2	3	1 1/2	105
15SS	1 1/4	6 3/4	10 3/4	14 1/2	10 1/4	10 3/4	5/8	2	3	1 1/2	167
16SS	1 1/4	7 3/8	10 3/4	14 1/2	11 3/16	11 11/16	5/8	2	3	1 1/2	183
17SS	1 1/2	7 3/16	12 3/4	16 1/2	11	11 1/2	3/4	2 1/2	3	1 3/4	261
18SS	2	8 7/16	14	19	12 9/16	13 5/16	3/4	3	4	2 3/8	381
19SS	2 1/4	9 5/16	16	21	14 1/4	15	3/4	3	4 1/2	2 5/8	524
20SS	2 3/4	8 7/16	18	23	13 13/16	14 9/16	1	4	4 1/2	3 1/8	640
21SS	2 3/4	9	20	25	14 9/16	15 5/16	1	4	4 1/2	3 1/8	797
22SS	3	10 3/4	24	29	16 7/8	17 7/8	1	4	5	3 3/8	1224
23SS	3	11 9/16	26	31	18 1/16	19 1/16	1	4	5	3 3/8	1501

Type BT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

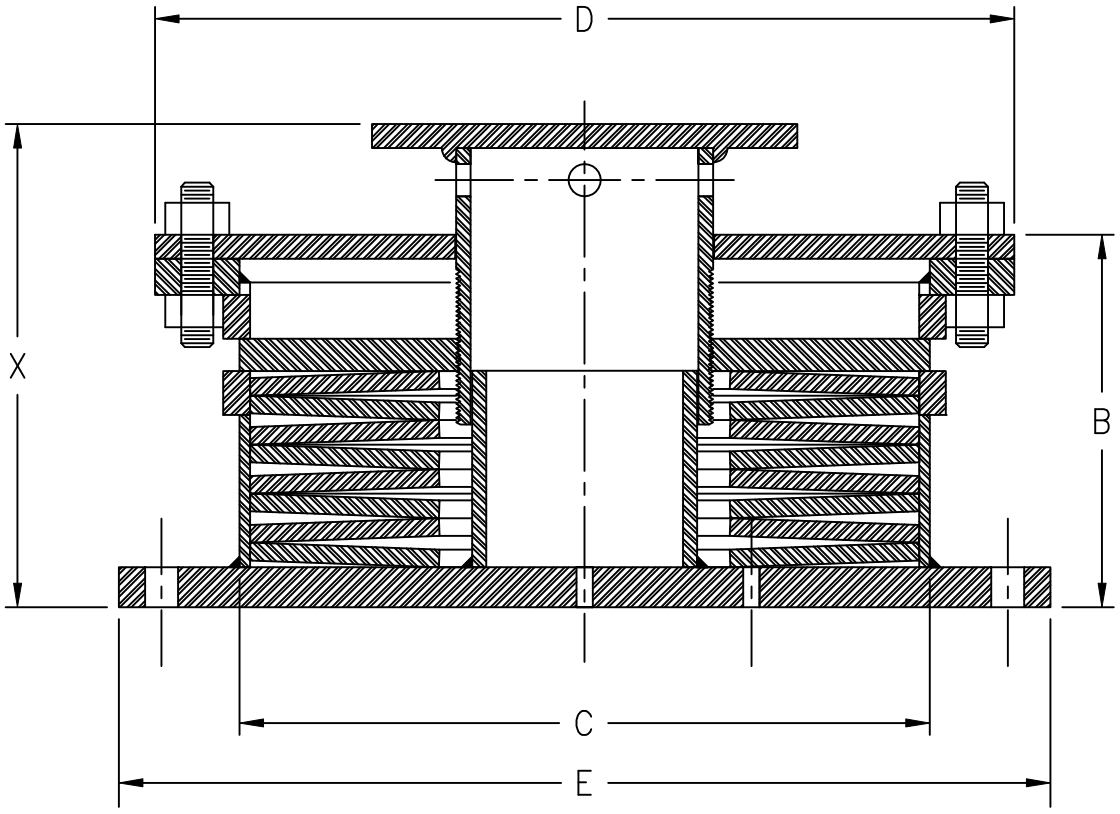
Figure 375 SS Type CT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. D	Length X Min	Length X Max	Lug Thk. T	clevis opening S	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1SS	1/2	4 5/16	1 7/8	3 7/8	6 7/16	6 5/8	1/4	7/8	1 1/4	1 1/2	11/16	5
2SS	1/2	4 5/8	2 3/8	4 3/8	6 13/16	7	1/4	7/8	1 1/4	1 1/2	11/16	7
3SS	1/2	4 5/8	2 3/8	4 3/8	6 3/4	6 15/16	1/4	7/8	1 1/4	1 1/2	11/16	7
4SS	1/2	4 5/8	2 3/8	4 3/8	6 3/4	6 15/16	1/4	7/8	1 1/4	1 1/2	11/16	7
5SS	1/2	4 1/2	2 3/8	4 3/8	6 13/16	7	1/4	7/8	1 1/4	1 1/2	11/16	7
6SS	1/2	4 3/4	3 1/2	5 1/2	7 3/16	7 3/8	1/4	1 1/16	1 1/4	1 1/2	11/16	12
7SS	5/8	4 5/8	3 1/2	5 1/2	7 1/16	7 1/4	1/4	1 1/16	1 1/4	1 1/2	13/16	12
8SS	5/8	4 13/16	3 1/2	5 1/2	7 3/16	7 7/16	1/4	1 1/16	1 1/4	1 1/2	13/16	13
9SS	3/4	4 15/16	4 1/2	6 1/2	7 1/2	7 3/4	3/8	1 1/4	1 1/4	1 1/2	15/16	20
10SS	3/4	5 3/16	4 1/2	7	7 13/16	8 1/16	3/8	1 1/4	1 1/4	1 1/2	15/16	24
11SS	3/4	5 1/2	6 5/8	9	8 7/16	8 13/16	3/8	1 1/4	1 1/4	1 1/2	15/16	47
12SS	1	5 3/4	6 5/8	9	8 15/16	9 5/16	1/2	1 5/8	1 1/2	2	1 1/4	50
13SS	1	6 1/4	8 5/8	12	9 5/8	10	1/2	1 5/8	1 1/2	2	1 1/4	102
14SS	1 1/4	6 9/16	8 5/8	12	9 15/16	10 5/16	5/8	2	2	3	1 1/2	105
15SS	1 1/4	6 3/4	10 3/4	14 1/2	10 1/4	10 3/4	5/8	2	2	3	1 1/2	167
16SS	1 1/4	7 3/8	10 3/4	14 1/2	11 3/16	11 11/16	3/4	2 3/8	2 1/2	3	1 3/4	183
17SS	1 1/2	7 3/16	12 3/4	16 1/2	11	11 1/2	3/4	2 5/8	2 1/2	3	2	261
18SS	2	8 7/16	14	19	12 9/16	13 5/16	3/4	2 7/8	3	4	2 3/8	381
19SS	2 1/4	9 5/16	16	21	14 1/4	15	3/4	3 1/8	3	4 1/2	2 5/8	524
20SS	2 3/4	8 7/16	18	23	13 13/16	14 9/16	1	3 3/8	4	4 1/2	3 1/8	640
21SS	2 3/4	9	20	25	14 9/16	15 5/16	1	3 5/8	4	4 1/2	3 1/8	797
22SS	3	10 3/4	24	29	16 7/8	17 7/8	1	3 7/8	4	5	3 3/8	1224
23SS	3	11 9/16	26	31	18 1/16	19 1/16	1	3 7/8	4	5	3 3/8	1501

Type CT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

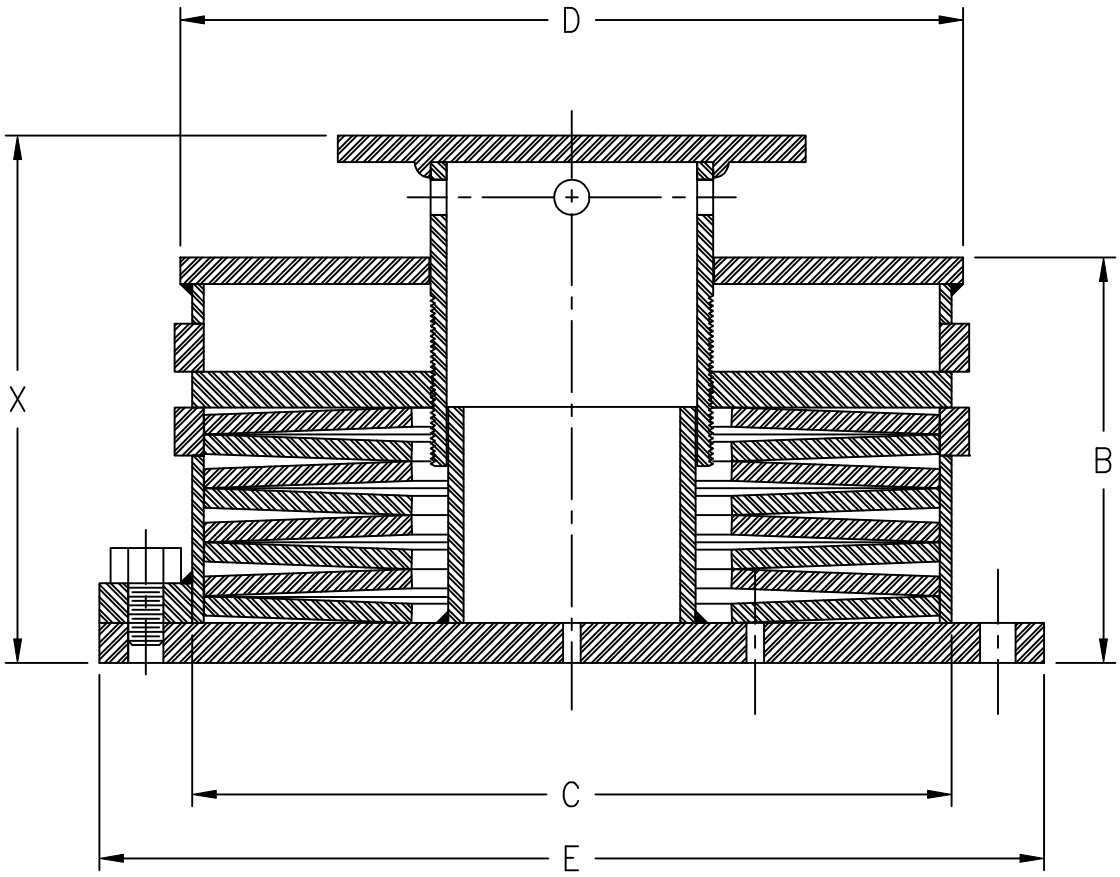
Figure 500 SS Type F



Item SIZE	Casing Length B	Casing Diam. C	Cover Plate Diam. D	Base Plate Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Base Plate Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1SS	5 1/2	1 7/8	3 7/8	3 7/8	3	3/8	3/16	7 15/16	8 5/16	0.8400	2	3/16	5
2SS	5 15/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 7/16	8 13/16	1.0500	3 7/8	3/16	9
3SS	5 15/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 7/16	8 13/16	1.0500	3 7/8	3/16	9
4SS	5 7/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 3/8	8 3/4	1.0500	3 7/8	3/16	9
5SS	5 3/4	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 7/16	8 13/16	1.0500	3 7/8	3/16	8
6SS	6	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	8 11/16	9 1/16	1.6600	3 7/8	3/16	16
7SS	5 7/8	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	8 9/16	8 15/16	1.6600	3 7/8	3/16	16
8SS	6	3 1/2	5 1/2	5 1/2	4 5/8	3/8	1/4	8 11/16	9 1/8	1.6600	3 7/8	3/16	16
9SS	6	4 1/2	6 1/2	6 1/2	5 5/8	3/8	1/4	8 3/4	9 3/16	1.9000	3 7/8	3/16	25
10SS	6 1/4	4 1/2	7	7	5 15/16	1/2	1/4	9 1/16	9 9/16	2 3/8	5 3/4	3/16	30
11SS	6 3/8	6 5/8	9	9	8	1/2	1/4	9 1/4	9 7/8	3 1/2	6 3/8	1/4	57
12SS	6 7/8	6 5/8	9	9	8	1/2	3/8	10 1/16	10 11/16	3 1/2	6 3/8	3/8	65
13SS	7 1/2	8 5/8	12	12	10 1/2	3/4	1/2	10 7/8	11 5/8	3 1/2	6 3/8	3/8	123
14SS	7 3/4	8 5/8	12	12	10 1/2	3/4	1/2	11 3/16	11 15/16	4 1/2	8 3/8	3/8	118
15SS	7 13/16	10 3/4	14 1/2	14 1/2	13	3/4	1/2	11 1/4	12 1/4	4 1/2	8 3/8	3/8	177
16SS	8 3/16	10 3/4	14 1/2	14 1/2	13	3/4	1/2	11 11/16	12 11/16	5 9/16	8 3/8	3/8	193
17SS	7 3/4	12 3/4	16 1/2	16 1/2	15	3/4	5/8	11 3/16	12 3/16	5 9/16	8 3/8	3/8	260
18SS	8 15/16	14	19	19	17	3/4	5/8	12 11/16	14 1/16	5 9/16	8 3/8	3/8	365
19SS	9 15/16	16	21	21	19	3/4	3/4	13 7/8	15 1/4	6 5/8	12 1/2	3/8	493
20SS	8 5/16	18	23	23	21	1	3/4	12 1/8	13 5/8	8 5/8	12 1/2	3/8	543
21SS	8 15/16	20	25	25	23	1	3/4	13 3/8	14 7/8	8 5/8	12 1/2	3/4	701
22SS	10 11/16	24	29	29	27	1	3/4	15 7/16	17 3/16	10 3/4	12 1/2	3/4	1068
23SS	11 1/4	26	31	31	29	1	3/4	16 1/8	17 7/8	10 3/4	12 1/2	3/4	1238

Type F is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

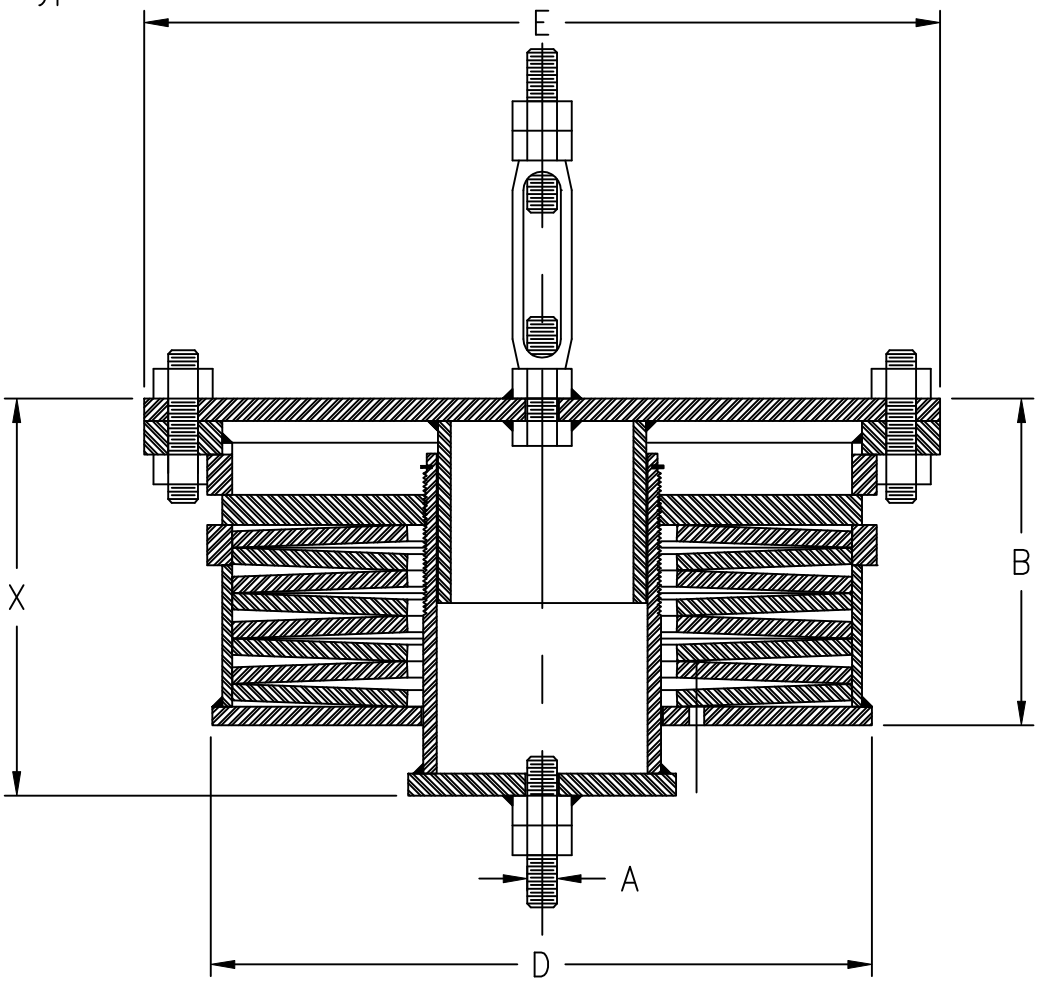
Figure 500 SS Type FW



Item SIZE	Casing Length B	Casing Diam. C	Flange Diam. D	Bottom Flange Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Bottom Flange Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1SS	5 1/2	1 7/8	3 7/8	3 7/8	3	3/8	3/16	7 15/16	8 1/8	0.8400	2	3/16	5
2SS	5 15/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 7/16	8 5/8	1.0500	3 7/8	3/16	9
3SS	5 15/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 7/16	8 5/8	1.0500	3 7/8	3/16	9
4SS	5 7/8	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 3/8	8 9/16	1.0500	3 7/8	3/16	9
5SS	5 3/4	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	8 7/16	8 5/8	1.0500	3 7/8	3/16	8
6SS	6	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	8 11/16	8 7/8	1.6600	3 7/8	3/16	16
7SS	5 7/8	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	8 9/16	8 3/4	1.6600	3 7/8	3/16	15
8SS	6	3 1/2	5 1/2	5 1/2	4 5/8	3/8	1/4	8 11/16	8 15/16	1.6600	3 7/8	3/16	16
9SS	6	4 1/2	6 1/2	6 1/2	5 5/8	3/8	1/4	8 3/4	9	1.9000	3 7/8	3/16	25
10SS	6 1/4	4 1/2	7	7	5 15/16	1/2	1/4	9	9 1/4	2 3/8	5 3/4	3/16	30
11SS	6 3/8	6 5/8	9	9	8	1/2	1/4	9 3/16	9 9/16	3 1/2	6 3/8	1/4	57
12SS	6 7/8	6 5/8	9	9	8	1/2	3/8	10 1/16	10 7/16	3 1/2	6 3/8	3/8	65
13SS	7 1/2	8 5/8	12	12	10 1/2	3/4	1/2	10 7/8	11 1/4	3 1/2	6 3/8	3/8	123
14SS	7 3/4	8 5/8	12	12	10 1/2	3/4	1/2	11 3/16	11 9/16	4 1/2	8 3/8	3/8	118
15SS	7 13/16	10 3/4	14 1/2	14 1/2	13	3/4	1/2	11 1/8	11 5/8	4 1/2	8 3/8	3/8	176
16SS	8 3/16	10 3/4	14 1/2	14 1/2	13	3/4	1/2	11 9/16	12 1/16	5 9/16	8 3/8	3/8	193
17SS	7 3/4	12 3/4	16 1/2	16 1/2	15	3/4	5/8	11 3/16	11 11/16	5 9/16	8 3/8	3/8	259
18SS	8 15/16	14	19	19	17	3/4	5/8	12 11/16	13 7/16	5 9/16	8 3/8	3/8	364
19SS	9 15/16	16	21	21	19	3/4	3/4	13 7/8	14 5/8	6 5/8	12 1/2	3/8	492
20SS	8 5/16	18	23	23	21	1	3/4	12 1/8	12 7/8	8 5/8	12 1/2	3/8	541
21SS	8 15/16	20	25	25	23	1	3/4	13 3/8	14 1/8	8 5/8	12 1/2	3/4	699
22SS	10 11/16	24	29	29	27	1	3/4	15 7/16	16 7/16	10 3/4	12 1/2	3/4	1065
23SS	11 1/4	26	31	31	29	1	3/4	16 1/8	17 1/8	10 3/4	12 1/2	3/4	1235

Type FW is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

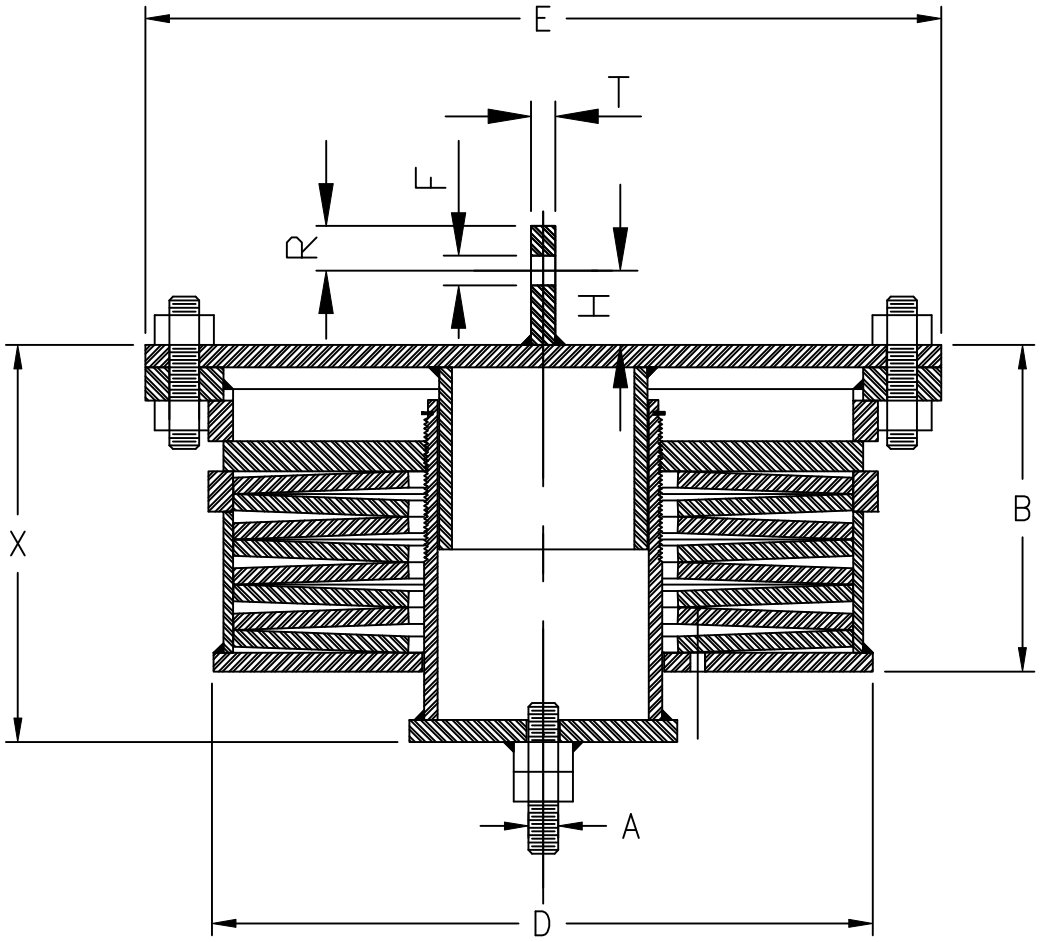
Figure 500 SS Type AT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. E	Length X Min	Length X Max	Wgt lbs. (est.)
1SS	1/2	5 1/2	1 7/8	3 7/8	7 15/16	8 1/8	5
2SS	1/2	5 15/16	2 3/8	4 3/8	8 7/16	8 5/8	8
3SS	1/2	5 15/16	2 3/8	4 3/8	8 7/16	8 5/8	8
4SS	1/2	5 7/8	2 3/8	4 3/8	8 3/8	8 9/16	8
5SS	1/2	5 3/4	2 3/8	4 3/8	8 7/16	8 5/8	8
6SS	1/2	6 1/16	3 1/2	5 1/2	8 13/16	9	14
7SS	5/8	5 15/16	3 1/2	5 1/2	8 11/16	8 7/8	14
8SS	5/8	6 1/16	3 1/2	5 1/2	8 13/16	9 1/16	15
9SS	3/4	6 3/16	4 1/2	6 1/2	9 1/8	9 3/8	24
10SS	3/4	6 1/2	4 1/2	7	9 1/2	9 3/4	28
11SS	3/4	6 3/4	6 5/8	9	10 1/16	10 7/16	55
12SS	1	7 1/8	6 5/8	9	10 11/16	11 1/16	58
13SS	1	7 3/4	8 5/8	12	11 1/2	11 7/8	118
14SS	1 1/4	8 1/8	8 5/8	12	11 15/16	12 5/16	119
15SS	1 1/4	8 3/16	10 3/4	14 1/2	12 1/8	12 5/8	189
16SS	1 1/4	8 15/16	10 3/4	14 1/2	13 3/16	13 11/16	205
17SS	1 1/2	8 5/8	12 3/4	16 1/2	12 13/16	13 5/16	292
18SS	2	9 15/16	14	19	14 9/16	15 5/16	421
19SS	2 1/4	11 1/16	16	21	16 1/2	17 1/4	579
20SS	2 3/4	9 13/16	18	23	15 1/2	16 1/4	690
21SS	2 3/4	10 7/16	20	25	16 1/2	17 1/4	868
22SS	3	12 9/16	24	29	19 3/16	20 3/16	1347
23SS	3	13 1/2	26	31	20 1/2	21 1/2	1647

Type AT is designed for supporting from a member by placing a threaded rod in the top turnbuckle and locking the jam nut. Adjustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

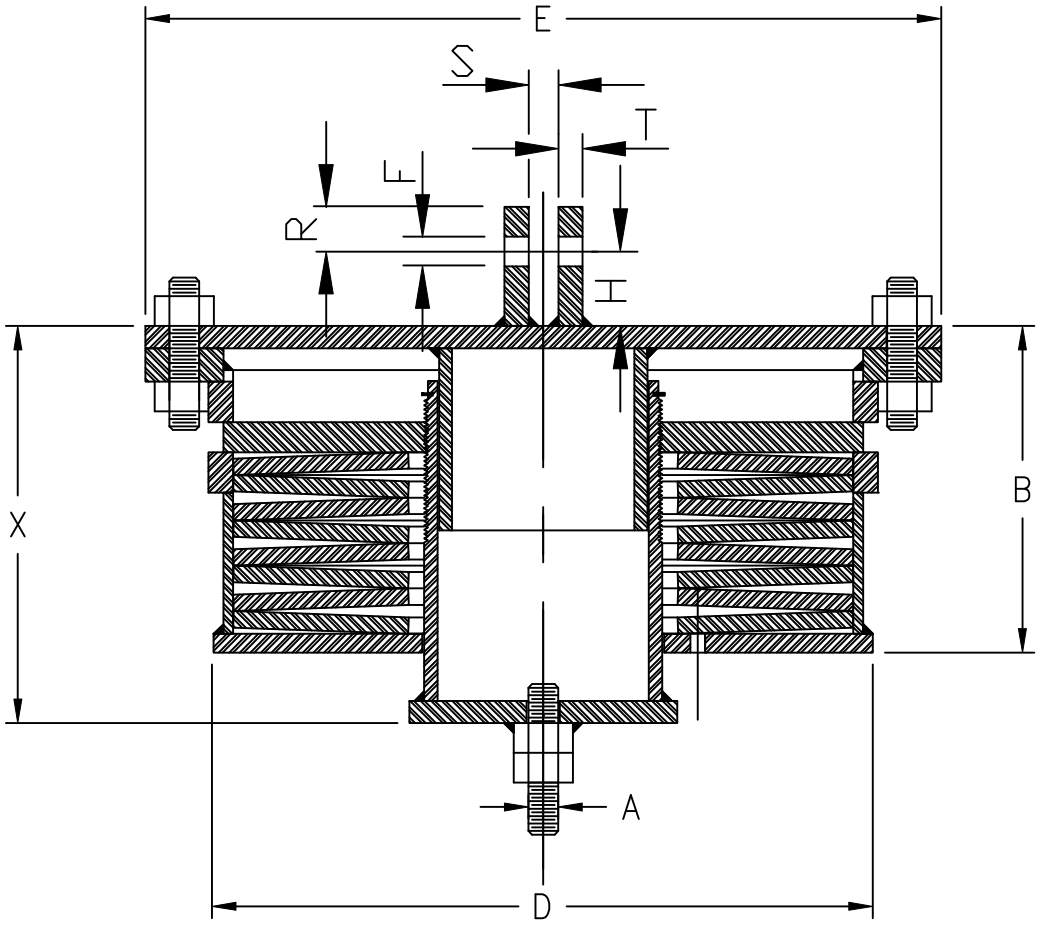
Figure 500 SS Type BT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. D	Flange Diam. E	Length X Min	Length X Max	Lug Thk. T	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1SS	1/2	5 1/2	1 7/8	3 7/8	7 15/16	8 1/8	1/4	1 1/4	1 1/2	11/16	5
2SS	1/2	5 15/16	2 3/8	4 3/8	8 7/16	8 5/8	1/4	1 1/4	1 1/2	11/16	8
3SS	1/2	5 15/16	2 3/8	4 3/8	8 7/16	8 5/8	1/4	1 1/4	1 1/2	11/16	8
4SS	1/2	5 7/8	2 3/8	4 3/8	8 3/8	8 9/16	1/4	1 1/4	1 1/2	11/16	8
5SS	1/2	5 3/4	2 3/8	4 3/8	8 7/16	8 5/8	1/4	1 1/4	1 1/2	11/16	8
6SS	1/2	6 1/16	3 1/2	5 1/2	8 13/16	9	1/4	1 1/4	1 1/2	11/16	14
7SS	5/8	5 15/16	3 1/2	5 1/2	8 11/16	8 7/8	1/4	1 1/4	1 1/2	13/16	14
8SS	5/8	6 1/16	3 1/2	5 1/2	8 13/16	9 1/16	1/4	1 1/4	1 1/2	13/16	15
9SS	3/4	6 3/16	4 1/2	6 1/2	9 1/8	9 3/8	3/8	1 1/4	1 1/2	15/16	24
10SS	3/4	6 1/2	4 1/2	7	9 1/2	9 3/4	3/8	1 1/4	1 1/2	15/16	28
11SS	3/4	6 3/4	6 5/8	9	10 1/16	10 7/16	3/8	1 1/4	1 1/2	15/16	55
12SS	1	7 1/8	6 5/8	9	10 11/16	11 1/16	1/2	1 1/2	2	1 1/4	58
13SS	1	7 3/4	8 5/8	12	11 1/2	11 7/8	1/2	1 1/2	2	1 1/4	118
14SS	1 1/4	8 1/8	8 5/8	12	11 15/16	12 5/16	5/8	2	3	1 1/2	119
15SS	1 1/4	8 3/16	10 3/4	14 1/2	12 1/8	12 5/8	5/8	2	3	1 1/2	189
16SS	1 1/4	8 15/16	10 3/4	14 1/2	13 3/16	13 11/16	5/8	2	3	1 1/2	205
17SS	1 1/2	8 5/8	12 3/4	16 1/2	12 13/16	13 5/16	3/4	2 1/2	3	1 3/4	292
18SS	2	9 15/16	14	19	14 9/16	15 5/16	3/4	3	4	2 3/8	421
19SS	2 1/4	11 1/16	16	21	16 1/2	17 1/4	3/4	3	4 1/2	2 5/8	579
20SS	2 3/4	9 13/16	18	23	15 1/2	16 1/4	1	4	4 1/2	3 1/8	690
21SS	2 3/4	10 7/16	20	25	16 1/2	17 1/4	1	4	4 1/2	3 1/8	868
22SS	3	12 9/16	24	29	19 3/16	20 3/16	1	4	5	3 3/8	1347
23SS	3	13 1/2	26	31	20 1/2	21 1/2	1	4	5	3 3/8	1647

Type BT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

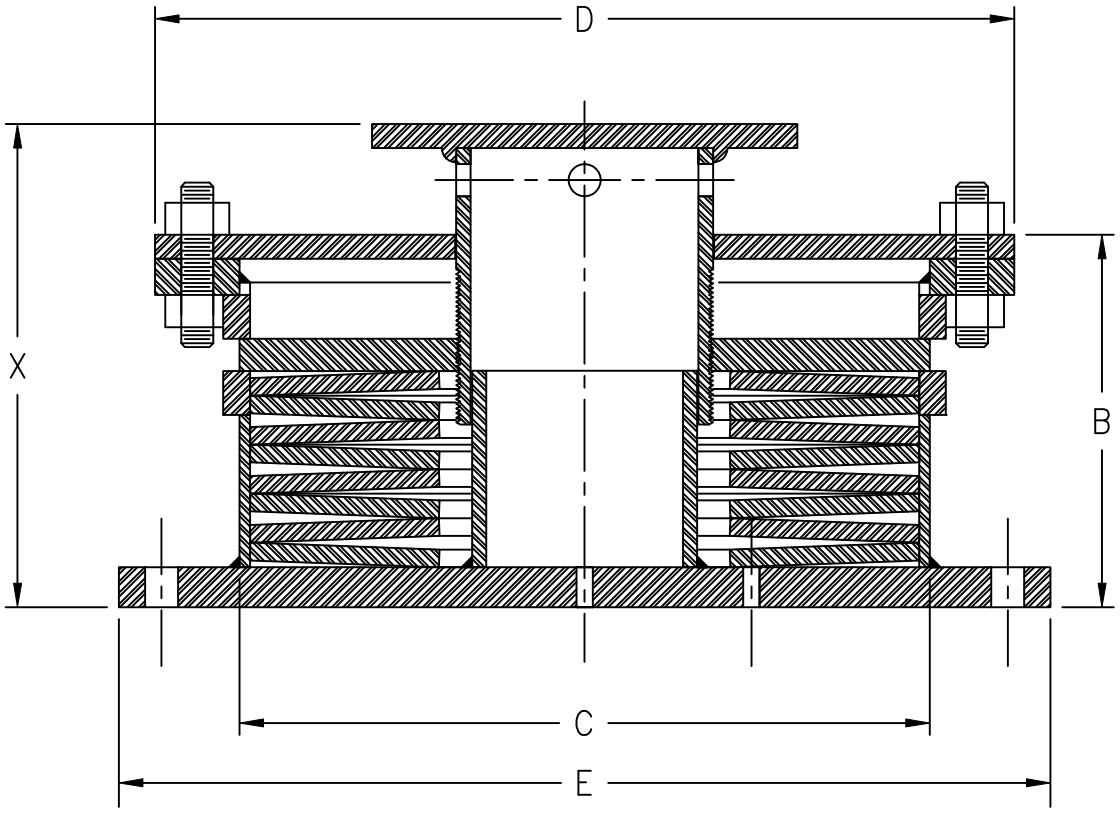
Figure 500 SS Type CT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. D	Length X Min	Length X Max	Lug Thk. T	clevis opening S	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1SS	1/2	5 1/2	1 7/8	3 7/8	7 15/16	8 1/8	1/4	7/8	1 1/4	1 1/2	11/16	5
2SS	1/2	5 15/16	2 3/8	4 3/8	8 7/16	8 5/8	1/4	7/8	1 1/4	1 1/2	11/16	8
3SS	1/2	5 15/16	2 3/8	4 3/8	8 7/16	8 5/8	1/4	7/8	1 1/4	1 1/2	11/16	8
4SS	1/2	5 7/8	2 3/8	4 3/8	8 3/8	8 9/16	1/4	7/8	1 1/4	1 1/2	11/16	8
5SS	1/2	5 3/4	2 3/8	4 3/8	8 7/16	8 5/8	1/4	7/8	1 1/4	1 1/2	11/16	8
6SS	1/2	6 1/16	3 1/2	5 1/2	8 13/16	9	1/4	1 1/16	1 1/4	1 1/2	11/16	14
7SS	5/8	5 15/16	3 1/2	5 1/2	8 11/16	8 7/8	1/4	1 1/16	1 1/4	1 1/2	13/16	14
8SS	5/8	6 1/16	3 1/2	5 1/2	8 13/16	9 1/16	1/4	1 1/16	1 1/4	1 1/2	13/16	15
9SS	3/4	6 3/16	4 1/2	6 1/2	9 1/8	9 3/8	3/8	1 1/4	1 1/4	1 1/2	15/16	24
10SS	3/4	6 1/2	4 1/2	7	9 1/2	9 3/4	3/8	1 1/4	1 1/4	1 1/2	15/16	28
11SS	3/4	6 3/4	6 5/8	9	10 1/16	10 7/16	3/8	1 1/4	1 1/4	1 1/2	15/16	55
12SS	1	7 1/8	6 5/8	9	10 11/16	11 1/16	1/2	1 5/8	1 1/2	2	1 1/4	58
13SS	1	7 3/4	8 5/8	12	11 1/2	11 7/8	1/2	1 5/8	1 1/2	2	1 1/4	118
14SS	1 1/4	8 1/8	8 5/8	12	11 15/16	12 5/16	5/8	2	2	3	1 1/2	119
15SS	1 1/4	8 3/16	10 3/4	14 1/2	12 1/8	12 5/8	5/8	2	2	3	1 1/2	189
16SS	1 1/4	8 15/16	10 3/4	14 1/2	13 3/16	13 11/16	3/4	2 3/8	2 1/2	3	1 3/4	205
17SS	1 1/2	8 5/8	12 3/4	16 1/2	12 13/16	13 5/16	3/4	2 5/8	2 1/2	3	2	292
18SS	2	9 15/16	14	19	14 9/16	15 5/16	3/4	2 7/8	3	4	2 3/8	421
19SS	2 1/4	11 1/16	16	21	16 1/2	17 1/4	3/4	3 1/8	3	4 1/2	2 5/8	579
20SS	2 3/4	9 13/16	18	23	15 1/2	16 1/4	1	3 3/8	4	4 1/2	3 1/8	690
21SS	2 3/4	10 7/16	20	25	16 1/2	17 1/4	1	3 5/8	4	4 1/2	3 1/8	868
22SS	3	12 9/16	24	29	19 3/16	20 3/16	1	3 7/8	4	5	3 3/8	1347
23SS	3	13 1/2	26	31	20 1/2	21 1/2	1	3 7/8	4	5	3 3/8	1647

Type CT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

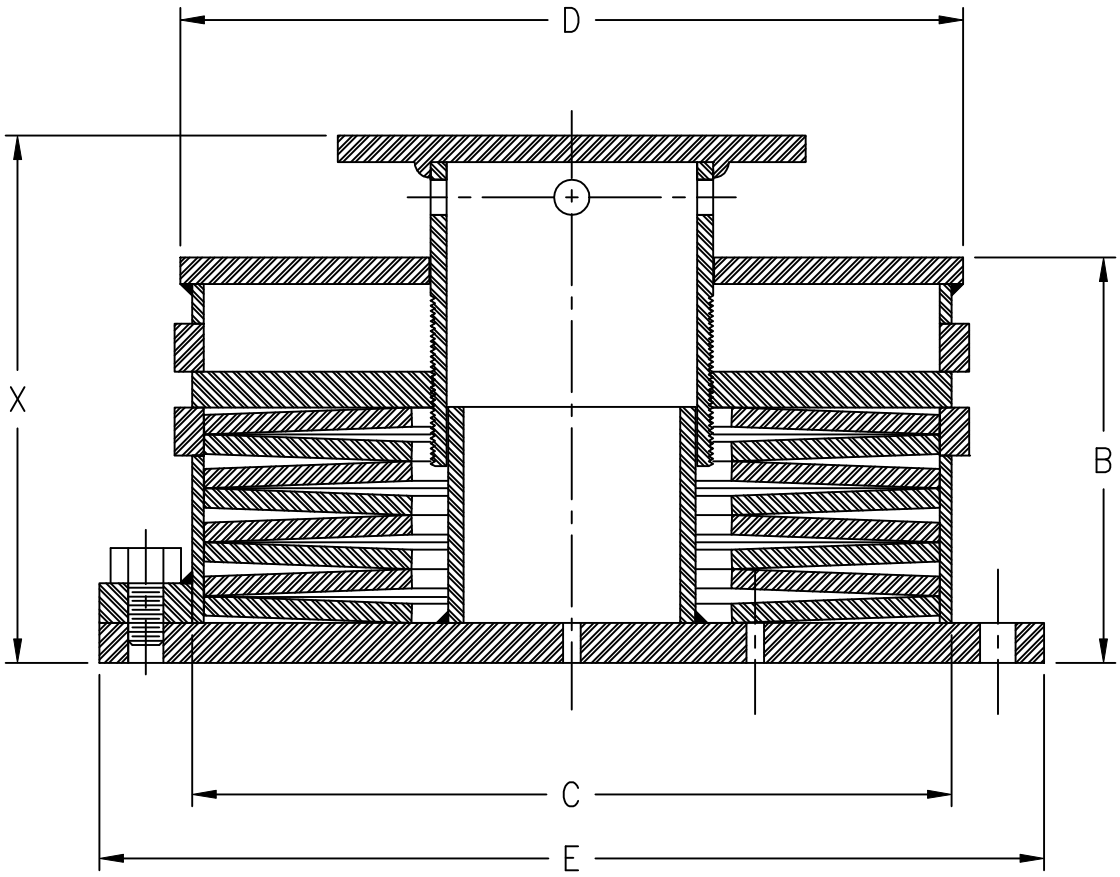
Figure 750 SS Type F



Item SIZE	Casing Length B	Casing Diam. C	Cover Plate Diam. D	Base Plate Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Base Plate Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1SS	7 7/8	1 7/8	3 7/8	3 7/8	3	3/8	3/16	11	11 3/8	0.8400	2	3/16	7
2SS	8 1/2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 3/4	12 1/8	1.0500	3 7/8	3/16	11
3SS	8 1/2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 3/4	12 1/8	1.0500	3 7/8	3/16	11
4SS	8 7/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 11/16	12 1/16	1.0500	3 7/8	3/16	11
5SS	8 5/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 5/8	12	1.0500	3 7/8	3/16	11
6SS	8 5/8	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	12 1/16	12 7/16	1.6600	3 7/8	3/16	21
7SS	8 7/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	11 13/16	12 3/16	1.6600	3 7/8	3/16	21
8SS	8 9/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	1/4	11 7/8	12 5/16	1.6600	3 7/8	3/16	21
9SS	8 1/2	4 1/2	6 1/2	6 1/2	5 5/8	3/8	1/4	12	12 7/16	1.9000	3 7/8	3/16	34
10SS	8 7/8	4 1/2	7	7	5 15/16	1/2	1/4	12 3/8	12 7/8	2 3/8	5 3/4	3/16	40
11SS	9	6 5/8	9	9	8	1/2	1/4	12 9/16	13 3/16	3 1/2	6 3/8	1/4	77
12SS	9 5/8	6 5/8	9	9	8	1/2	3/8	13 9/16	14 3/16	3 1/2	6 3/8	3/8	86
13SS	10 7/16	8 5/8	12	12	10 1/2	3/4	1/2	14 5/8	15 3/8	3 1/2	6 3/8	3/8	160
14SS	10 3/4	8 5/8	12	12	10 1/2	3/4	1/2	15 1/16	15 13/16	4 1/2	8 3/8	3/8	152
15SS	10 11/16	10 3/4	14 1/2	14 1/2	13	3/4	1/2	15	16	4 1/2	8 3/8	3/8	226
16SS	11 5/16	10 3/4	14 1/2	14 1/2	13	3/4	1/2	15 5/8	16 5/8	5 9/16	8 3/8	3/8	251
17SS	10 9/16	12 3/4	16 1/2	16 1/2	15	3/4	5/8	14 3/4	15 3/4	5 9/16	8 3/8	3/8	332
18SS	12 1/16	14	19	19	17	3/4	5/8	16 11/16	18 1/16	5 9/16	8 3/8	3/8	459
19SS	13 1/2	16	21	21	19	3/4	3/4	18 7/16	19 13/16	6 5/8	12 1/2	3/8	620
20SS	10 15/16	18	23	23	21	1	3/4	15 1/2	17	8 5/8	12 1/2	3/8	664
21SS	11 15/16	20	25	25	23	1	3/4	17 3/16	18 11/16	8 5/8	12 1/2	3/4	868
22SS	14 5/16	24	29	29	27	1	3/4	20 1/16	21 13/16	10 3/4	12 1/2	3/4	1349
23SS	15 1/8	26	31	31	29	1	3/4	21 1/16	22 13/16	10 3/4	12 1/2	3/4	1569

Type F is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

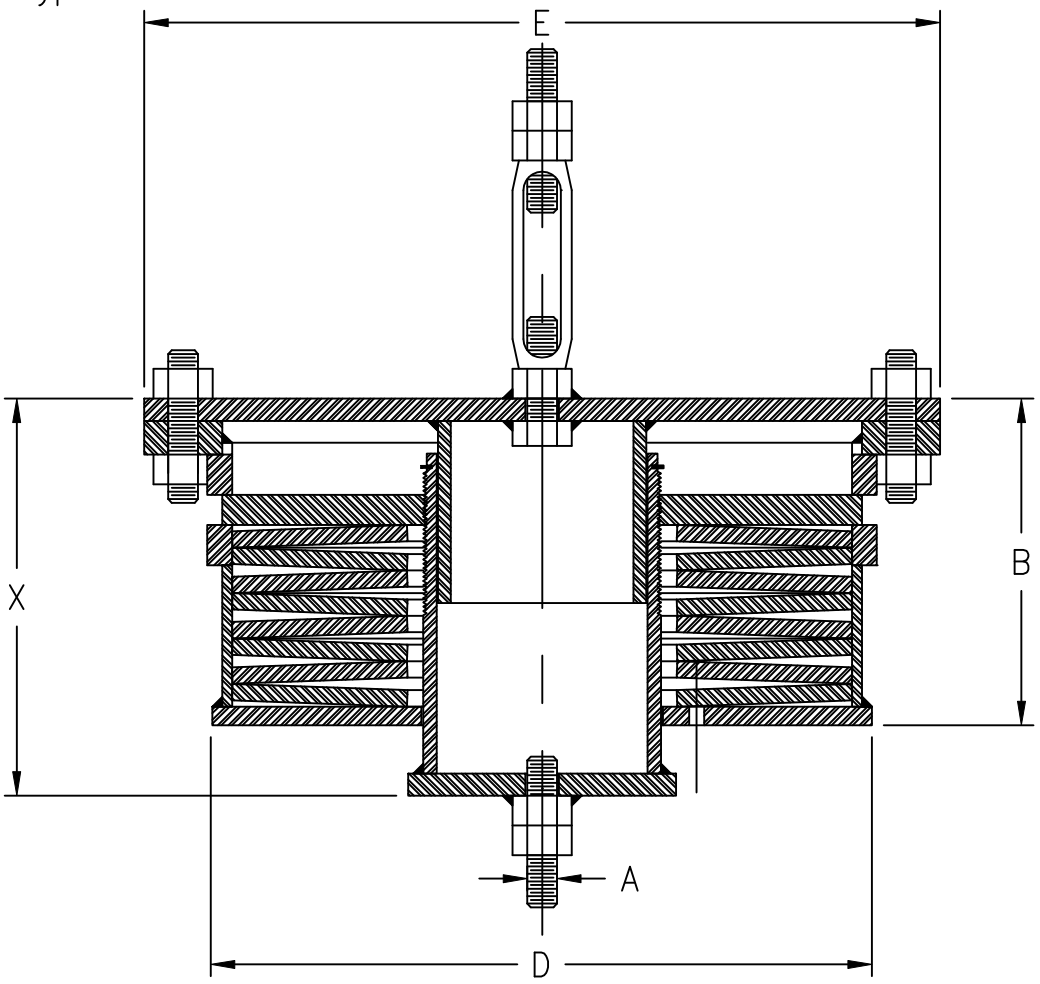
Figure 750 SS Type FW



Item SIZE	Casing Length B	Casing Diam. C	Flange Diam. D	Bottom Flange Square E	Bottom Flange Bolt Circle	Base Plate Bolt Diam.	Bottom Flange Thk.	Length X Min	Length X Max	Load Col. Diam.	Load Flange Diam.	Load Flange Thk.	Wgt lbs. (est.)
1SS	7 7/8	1 7/8	3 7/8	3 7/8	3	3/8	3/16	11	11 3/16	0.8400	2	3/16	7
2SS	8 1/2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 3/4	11 15/16	1.0500	3 7/8	3/16	11
3SS	8 1/2	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 3/4	11 15/16	1.0500	3 7/8	3/16	11
4SS	8 7/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 11/16	11 7/8	1.0500	3 7/8	3/16	11
5SS	8 5/16	2 3/8	4 3/8	4 3/8	3 1/2	3/8	3/16	11 5/8	11 13/16	1.0500	3 7/8	3/16	11
6SS	8 5/8	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	12 1/16	12 1/4	1.6600	3 7/8	3/16	21
7SS	8 7/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	3/16	11 13/16	12	1.6600	3 7/8	3/16	21
8SS	8 9/16	3 1/2	5 1/2	5 1/2	4 5/8	3/8	1/4	11 7/8	12 1/8	1.6600	3 7/8	3/16	21
9SS	8 1/2	4 1/2	6 1/2	6 1/2	5 5/8	3/8	1/4	12	12 1/4	1.9000	3 7/8	3/16	34
10SS	8 7/8	4 1/2	7	7	5 15/16	1/2	1/4	12 5/16	12 9/16	2 3/8	5 3/4	3/16	40
11SS	9	6 5/8	9	9	8	1/2	1/4	12 1/2	12 7/8	3 1/2	6 3/8	1/4	77
12SS	9 5/8	6 5/8	9	9	8	1/2	3/8	13 9/16	13 15/16	3 1/2	6 3/8	3/8	86
13SS	10 7/16	8 5/8	12	12	10 1/2	3/4	1/2	14 5/8	15	3 1/2	6 3/8	3/8	160
14SS	10 3/4	8 5/8	12	12	10 1/2	3/4	1/2	15 1/16	15 7/16	4 1/2	8 3/8	3/8	151
15SS	10 11/16	10 3/4	14 1/2	14 1/2	13	3/4	1/2	14 7/8	15 3/8	4 1/2	8 3/8	3/8	225
16SS	11 5/16	10 3/4	14 1/2	14 1/2	13	3/4	1/2	15 1/2	16	5 9/16	8 3/8	3/8	250
17SS	10 9/16	12 3/4	16 1/2	16 1/2	15	3/4	5/8	14 3/4	15 1/4	5 9/16	8 3/8	3/8	331
18SS	12 1/16	14	19	19	17	3/4	5/8	16 11/16	17 7/16	5 9/16	8 3/8	3/8	458
19SS	13 1/2	16	21	21	19	3/4	3/4	18 7/16	19 3/16	6 5/8	12 1/2	3/8	619
20SS	10 15/16	18	23	23	21	1	3/4	15 1/2	16 1/4	8 5/8	12 1/2	3/8	662
21SS	11 15/16	20	25	25	23	1	3/4	17 3/16	17 15/16	8 5/8	12 1/2	3/4	865
22SS	14 5/16	24	29	29	27	1	3/4	20 1/16	21 1/16	10 3/4	12 1/2	3/4	1346
23SS	15 1/8	26	31	31	29	1	3/4	21 1/16	22 1/16	10 3/4	12 1/2	3/4	1565

Type FW is designed for supporting a member from below the load. Adustment are made by turning the load column with a bar inserted in the holes provided to the load required shown on the load indicator.

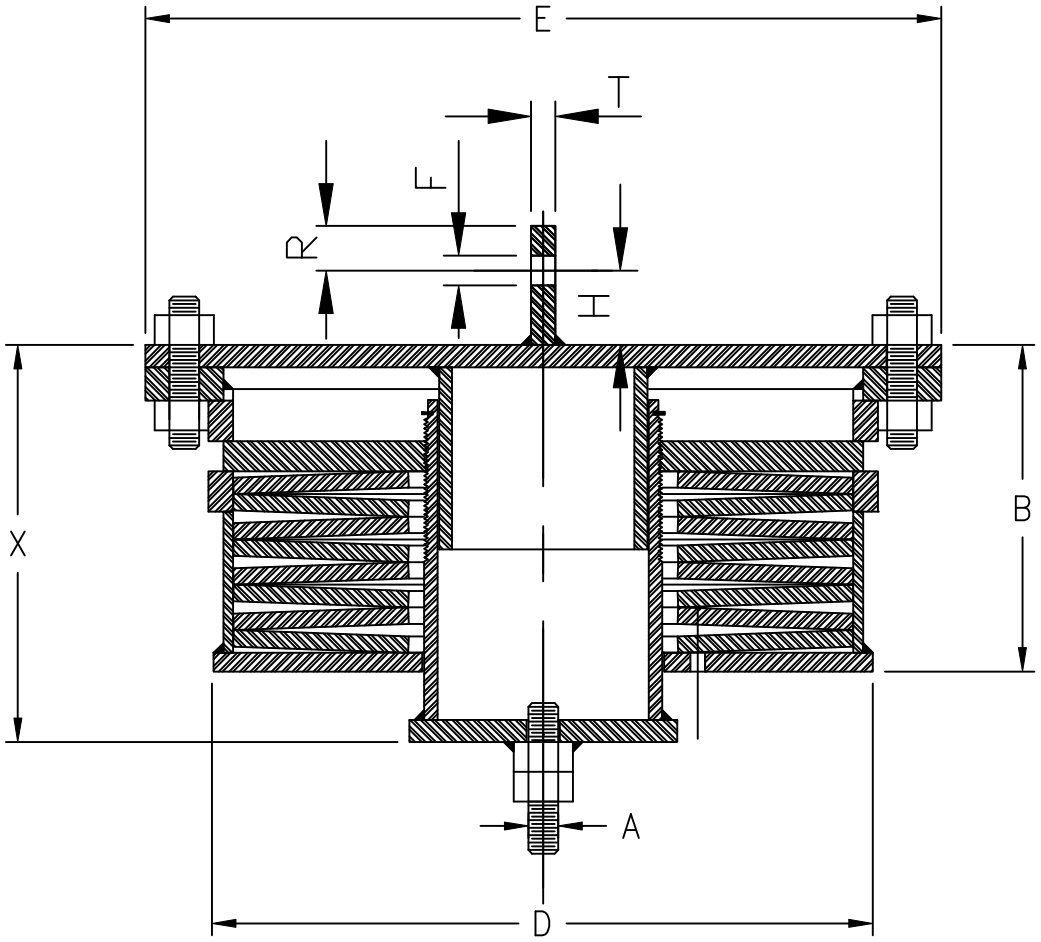
Figure 750 SS Type AT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. E	Length X Min	Length X Max	Wgt lbs. (est.)
1SS	1/2	7 7/8	1 7/8	3 7/8	11	11 3/16	7
2SS	1/2	8 1/2	2 3/8	4 3/8	11 3/4	11 15/16	11
3SS	1/2	8 1/2	2 3/8	4 3/8	11 3/4	11 15/16	11
4SS	1/2	8 7/16	2 3/8	4 3/8	11 11/16	11 7/8	11
5SS	1/2	8 5/16	2 3/8	4 3/8	11 5/8	11 13/16	10
6SS	1/2	8 11/16	3 1/2	5 1/2	12 3/16	12 3/8	19
7SS	5/8	8 1/2	3 1/2	5 1/2	11 15/16	12 1/8	19
8SS	5/8	8 5/8	3 1/2	5 1/2	12	12 1/4	19
9SS	3/4	8 11/16	4 1/2	6 1/2	12 3/8	12 5/8	31
10SS	3/4	9 1/8	4 1/2	7	12 13/16	13 1/16	35
11SS	3/4	9 3/8	6 5/8	9	13 3/8	13 3/4	69
12SS	1	9 7/8	6 5/8	9	14 3/16	14 9/16	74
13SS	1	10 11/16	8 5/8	12	15 1/4	15 5/8	150
14SS	1 1/4	11 1/8	8 5/8	12	15 13/16	16 3/16	148
15SS	1 1/4	11 1/16	10 3/4	14 1/2	15 7/8	16 3/8	233
16SS	1 1/4	12 1/16	10 3/4	14 1/2	17 1/8	17 5/8	251
17SS	1 1/2	11 7/16	12 3/4	16 1/2	16 3/8	16 7/8	353
18SS	2	13 1/16	14	19	18 9/16	19 5/16	503
19SS	2 1/4	14 5/8	16	21	21 1/16	21 13/16	690
20SS	2 3/4	12 7/16	18	23	18 7/8	19 5/8	790
21SS	2 3/4	13 7/16	20	25	20 5/16	21 1/16	1011
22SS	3	16 3/16	24	29	23 13/16	24 13/16	1592
23SS	3	17 3/8	26	31	25 7/16	26 7/16	1939

Type AT is designed for supporting from a member by placing a threaded rod in the top turnbuckle and locking the jam nut. Adjustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

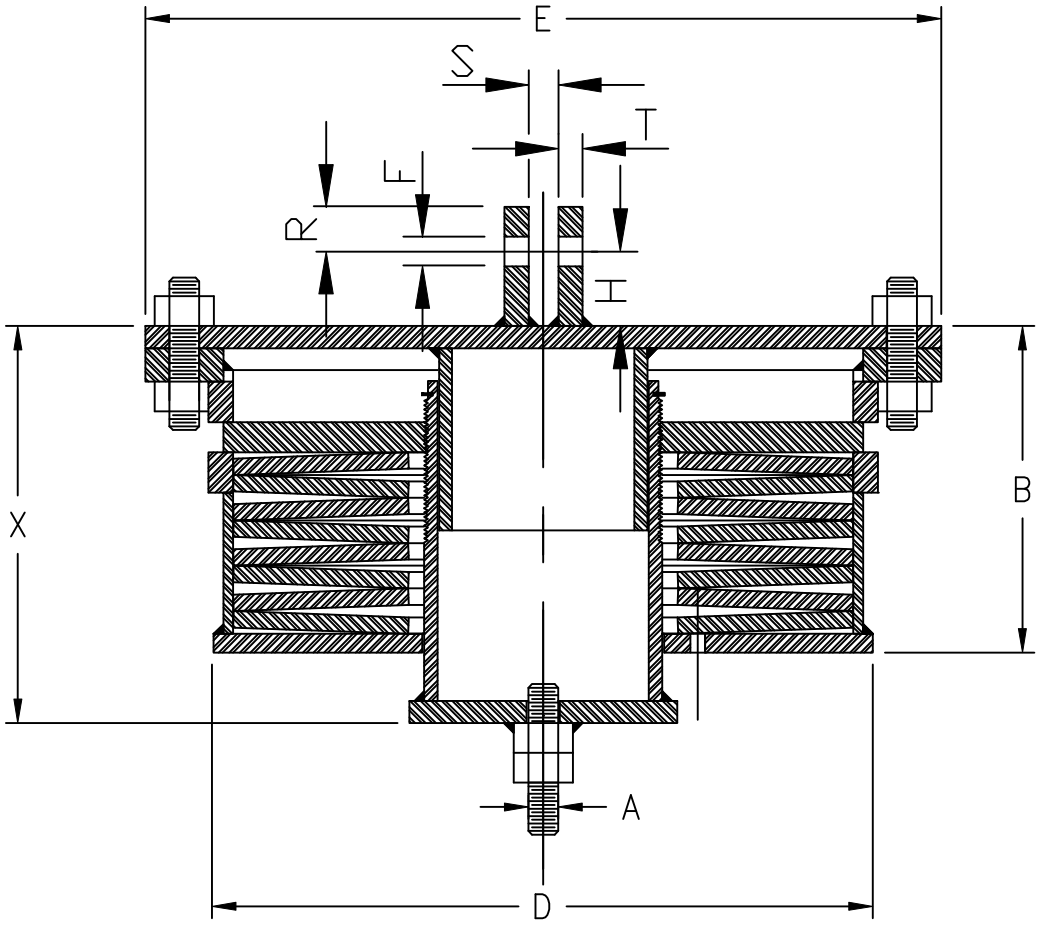
Figure 750 SS Type BT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. D	Flange Diam. E	Length X Min	Length X Max	Lug Thk. T	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1SS	1/2	7 7/8	1 7/8	3 7/8	11	11 3/16	1/4	1 1/4	1 1/2	11/16	7
2SS	1/2	8 1/2	2 3/8	4 3/8	11 3/4	11 15/16	1/4	1 1/4	1 1/2	11/16	11
3SS	1/2	8 1/2	2 3/8	4 3/8	11 3/4	11 15/16	1/4	1 1/4	1 1/2	11/16	11
4SS	1/2	8 7/16	2 3/8	4 3/8	11 11/16	11 7/8	1/4	1 1/4	1 1/2	11/16	11
5SS	1/2	8 5/16	2 3/8	4 3/8	11 5/8	11 13/16	1/4	1 1/4	1 1/2	11/16	10
6SS	1/2	8 11/16	3 1/2	5 1/2	12 3/16	12 3/8	1/4	1 1/4	1 1/2	11/16	19
7SS	5/8	8 1/2	3 1/2	5 1/2	11 15/16	12 1/8	1/4	1 1/4	1 1/2	13/16	19
8SS	5/8	8 5/8	3 1/2	5 1/2	12	12 1/4	1/4	1 1/4	1 1/2	13/16	19
9SS	3/4	8 11/16	4 1/2	6 1/2	12 3/8	12 5/8	3/8	1 1/4	1 1/2	15/16	31
10SS	3/4	9 1/8	4 1/2	7	12 13/16	13 1/16	3/8	1 1/4	1 1/2	15/16	35
11SS	3/4	9 3/8	6 5/8	9	13 3/8	13 3/4	3/8	1 1/4	1 1/2	15/16	69
12SS	1	9 7/8	6 5/8	9	14 3/16	14 9/16	1/2	1 1/2	2	1 1/4	74
13SS	1	10 11/16	8 5/8	12	15 1/4	15 5/8	1/2	1 1/2	2	1 1/4	150
14SS	1 1/4	11 1/8	8 5/8	12	15 13/16	16 3/16	5/8	2	3	1 1/2	148
15SS	1 1/4	11 1/16	10 3/4	14 1/2	15 7/8	16 3/8	5/8	2	3	1 1/2	233
16SS	1 1/4	12 1/16	10 3/4	14 1/2	17 1/8	17 5/8	5/8	2	3	1 1/2	251
17SS	1 1/2	11 7/16	12 3/4	16 1/2	16 3/8	16 7/8	3/4	2 1/2	3	1 3/4	353
18SS	2	13 1/16	14	19	18 9/16	19 5/16	3/4	3	4	2 3/8	503
19SS	2 1/4	14 5/8	16	21	21 1/16	21 13/16	3/4	3	4 1/2	2 5/8	690
20SS	2 3/4	12 7/16	18	23	18 7/8	19 5/8	1	4	4 1/2	3 1/8	790
21SS	2 3/4	13 7/16	20	25	20 5/16	21 1/16	1	4	4 1/2	3 1/8	1011
22SS	3	16 3/16	24	29	23 13/16	24 13/16	1	4	5	3 3/8	1592
23SS	3	17 3/8	26	31	25 7/16	26 7/16	1	4	5	3 3/8	1939

Type BT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

Figure 750 SS Type CT



Item SIZE	Rod Diam. A	Casing Length B	Casing Diam. C	Flange Diam. D	Length X Min	Length X Max	Lug Thk. T	clevis opening S	Lug radius R	Pin height H	Lug Hole Diameter F	Wgt lbs. (est.)
1SS	1/2	7 7/8	1 7/8	3 7/8	11	11 3/16	1/4	7/8	1 1/4	1 1/2	11/16	7
2SS	1/2	8 1/2	2 3/8	4 3/8	11 3/4	11 15/16	1/4	7/8	1 1/4	1 1/2	11/16	11
3SS	1/2	8 1/2	2 3/8	4 3/8	11 3/4	11 15/16	1/4	7/8	1 1/4	1 1/2	11/16	11
4SS	1/2	8 7/16	2 3/8	4 3/8	11 11/16	11 7/8	1/4	7/8	1 1/4	1 1/2	11/16	11
5SS	1/2	8 5/16	2 3/8	4 3/8	11 5/8	11 13/16	1/4	7/8	1 1/4	1 1/2	11/16	10
6SS	1/2	8 11/16	3 1/2	5 1/2	12 3/16	12 3/8	1/4	1 1/16	1 1/4	1 1/2	11/16	19
7SS	5/8	8 1/2	3 1/2	5 1/2	11 15/16	12 1/8	1/4	1 1/16	1 1/4	1 1/2	13/16	19
8SS	5/8	8 5/8	3 1/2	5 1/2	12	12 1/4	1/4	1 1/16	1 1/4	1 1/2	13/16	19
9SS	3/4	8 11/16	4 1/2	6 1/2	12 3/8	12 5/8	3/8	1 1/4	1 1/4	1 1/2	15/16	31
10SS	3/4	9 1/8	4 1/2	7	12 13/16	13 1/16	3/8	1 1/4	1 1/4	1 1/2	15/16	35
11SS	3/4	9 3/8	6 5/8	9	13 3/8	13 3/4	3/8	1 1/4	1 1/4	1 1/2	15/16	69
12SS	1	9 7/8	6 5/8	9	14 3/16	14 9/16	1/2	1 5/8	1 1/2	2	1 1/4	74
13SS	1	10 11/16	8 5/8	12	15 1/4	15 5/8	1/2	1 5/8	1 1/2	2	1 1/4	150
14SS	1 1/4	11 1/8	8 5/8	12	15 13/16	16 3/16	5/8	2	2	3	1 1/2	148
15SS	1 1/4	11 1/16	10 3/4	14 1/2	15 7/8	16 3/8	5/8	2	2	3	1 1/2	233
16SS	1 1/4	12 1/16	10 3/4	14 1/2	17 1/8	17 5/8	3/4	2 3/8	2 1/2	3	1 3/4	251
17SS	1 1/2	11 7/16	12 3/4	16 1/2	16 3/8	16 7/8	3/4	2 5/8	2 1/2	3	2	353
18SS	2	13 1/16	14	19	18 9/16	19 5/16	3/4	2 7/8	3	4	2 3/8	503
19SS	2 1/4	14 5/8	16	21	21 1/16	21 13/16	3/4	3 1/8	3	4 1/2	2 5/8	690
20SS	2 3/4	12 7/16	18	23	18 7/8	19 5/8	1	3 3/8	4	4 1/2	3 1/8	790
21SS	2 3/4	13 7/16	20	25	20 5/16	21 1/16	1	3 5/8	4	4 1/2	3 1/8	1011
22SS	3	16 3/16	24	29	23 13/16	24 13/16	1	3 7/8	4	5	3 3/8	1592
23SS	3	17 3/8	26	31	25 7/16	26 7/16	1	3 7/8	4	5	3 3/8	1939

Type CT is designed for supporting from a member by attaching to the lug. Adustment is done by turning the nut below the spring hanger to the load required shown on the load indicator.

DST QUALITY & TESTING

QUALITY POLICY

Our Quality Policy is to develop, produce, and deliver on time, products and services that meet or exceed customer expectations. In order to do this, we have implemented quality systems and processes that are continually being improved to satisfy our customers' changing needs.

QUALITY STATEMENT

DST and their product manufacturer, Belleville International, are focused in the Engineering support and sales of industrial spring support systems. DST priorities are to maintain customer relationships built on mutual expectations and trust. We strive to supply the highest quality products to the customer on-time and as competitive as possible. Through teamwork, planning and a constant effort to upgrade our quality system, we will continue to be a leader in the spring support marketplace. We believe partnership is what we have to offer our customers, and with the highest integrity. We realize that quality will benefit our customer needs, and continued long-term relationships.

QUALITY PROGRAM

All of the DST product manufacturing activities are performed by Belleville International, LLC. The DST fabricator has developed and maintains a quality program, which meets the requirements defined in the ISO Q9001-2000 Quality Standard. Belleville International utilizes a quality management system covering all activities and processes required to meet customer expectations for world-class products and services.

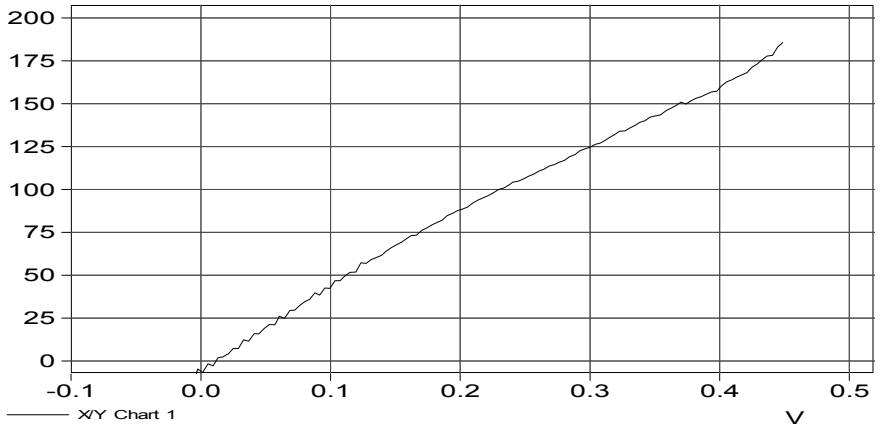
INDEPENDENT LAB TESTING

There were a total of eight tests performed to obtain the force (load) versus deflection readings. The springs tested were sizes 3 ¾" OD. x 1 ½" ID. CS and SS having the same dimensions (e.g. ID., OD. and thickness). Each material was tested separately in a series stack. The deflection reading was taken at every 25 lb force graduations. Each test was performed up to 100% spring load capacity, meaning up to flat spring position or no further deflection.

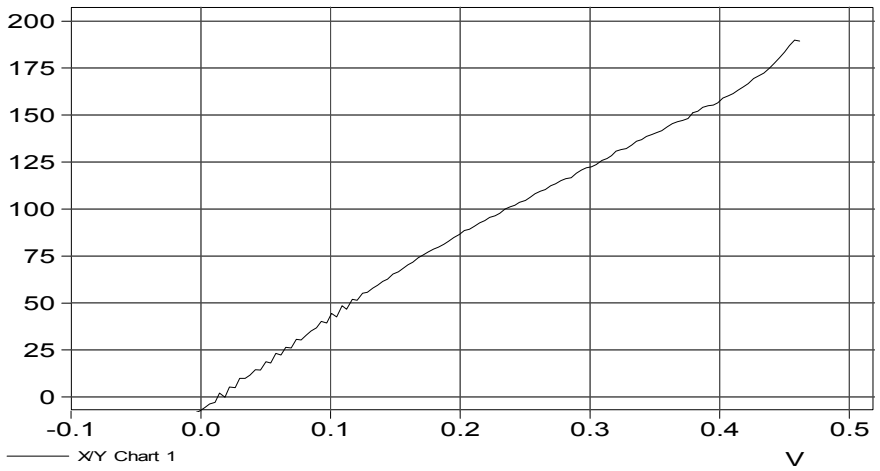
The test was performed using calibrated instrumentation traceable to NIST standards at the Columbia Basin College Material Science Engineering Laboratory located in the Pasco, WA. The variation in the test results was kept within +/- 5%. The photograph of the test setup can be seen on page 85.

The results of the carbon and stainless steel spring test are shown on the following pages. The applied loading rate for the first two tests was 0.0025 in/sec, which was doubled for the next two subsequent tests.

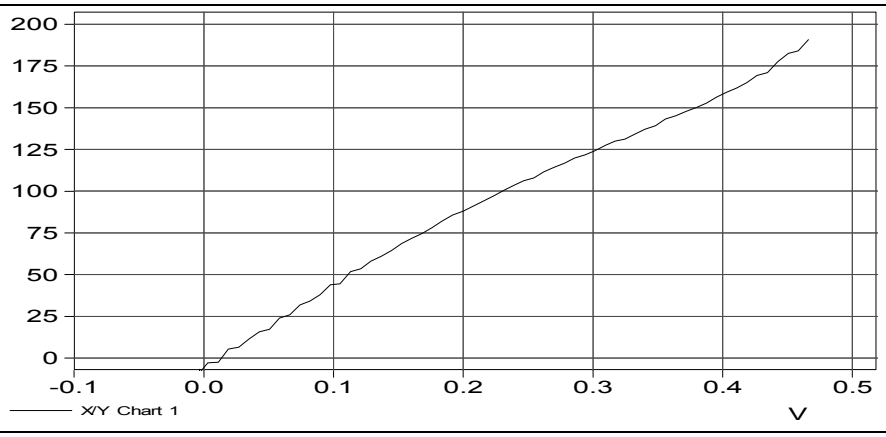
TEST RESULTS FOR CARBON STEEL DISC SPRINGS:



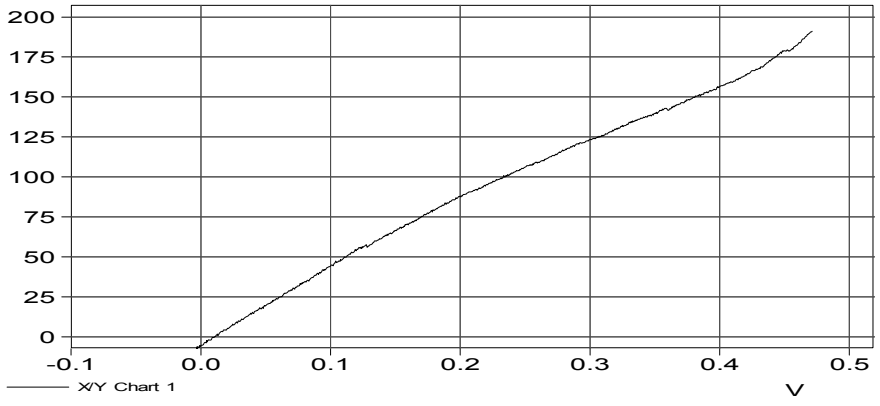
CS SPRINGS
Disc Spring XY Test 5K-1
Load vs. Displacement
Max Load 185 Lb.
Max Displacement 0.449 in.
0.0025 in/sec loading rate
X = Displacement (inch)
Y = Load (Lbs)



CS SPRINGS
Disc Spring XY Test 5K-2
Load vs. Displacement
Max Load 189 Lb.
Max Displacement 0.462 in.
0.0025 in/sec loading rate
X = Displacement (inch)
Y = Load (Lbs)

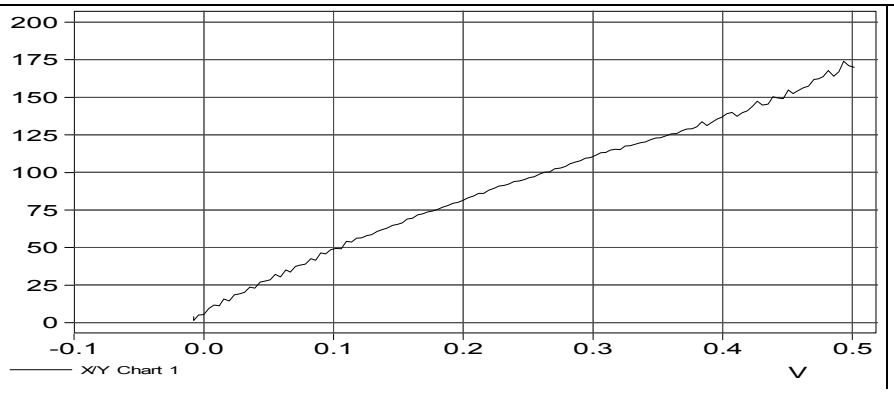
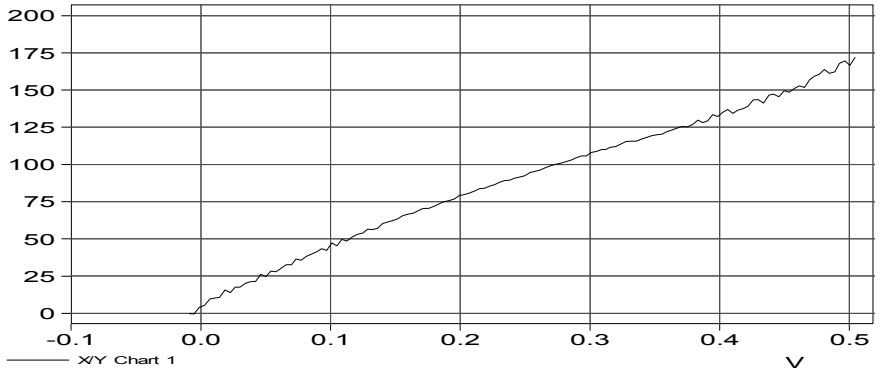
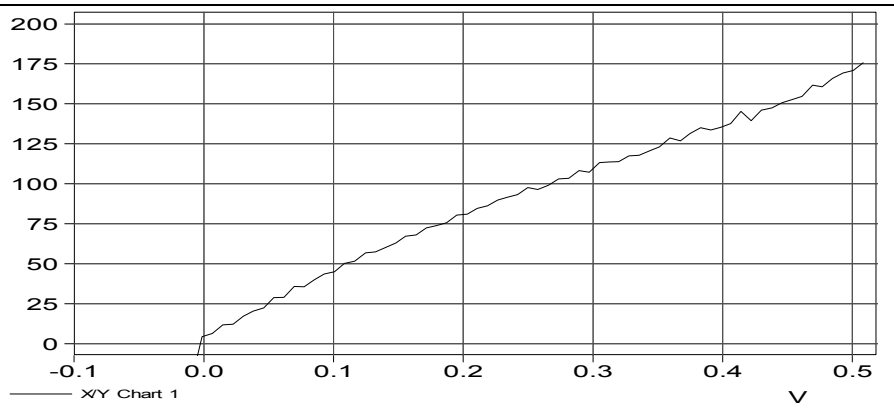
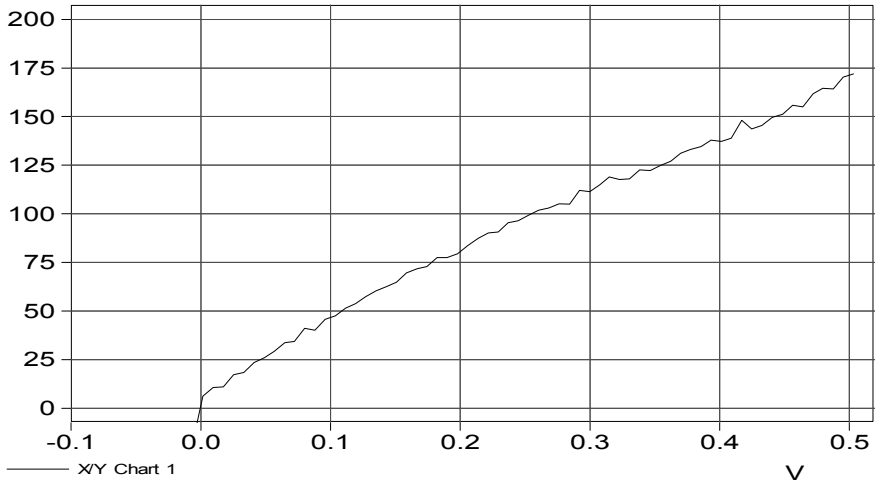


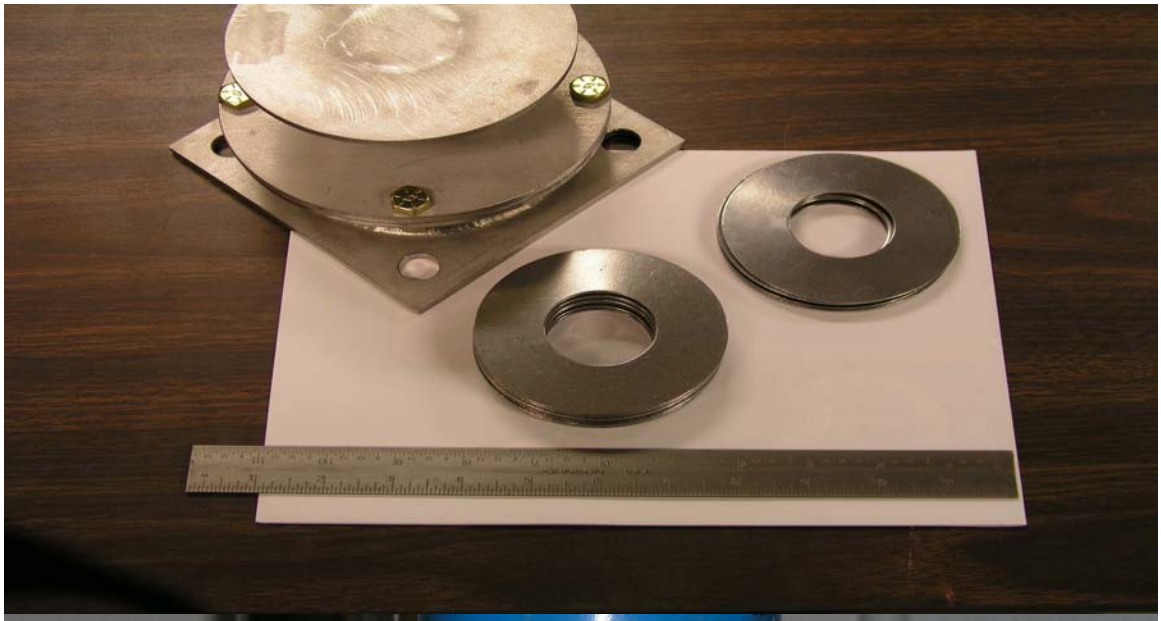
CS SPRINGS
Disc Spring XY Test 5K-3
Load vs. Displacement
Max Load 190 Lb.
Max Displacement 0.466 in.
0.005 in/sec loading rate
X = Displacement (inch)
Y = Load (Lbs)

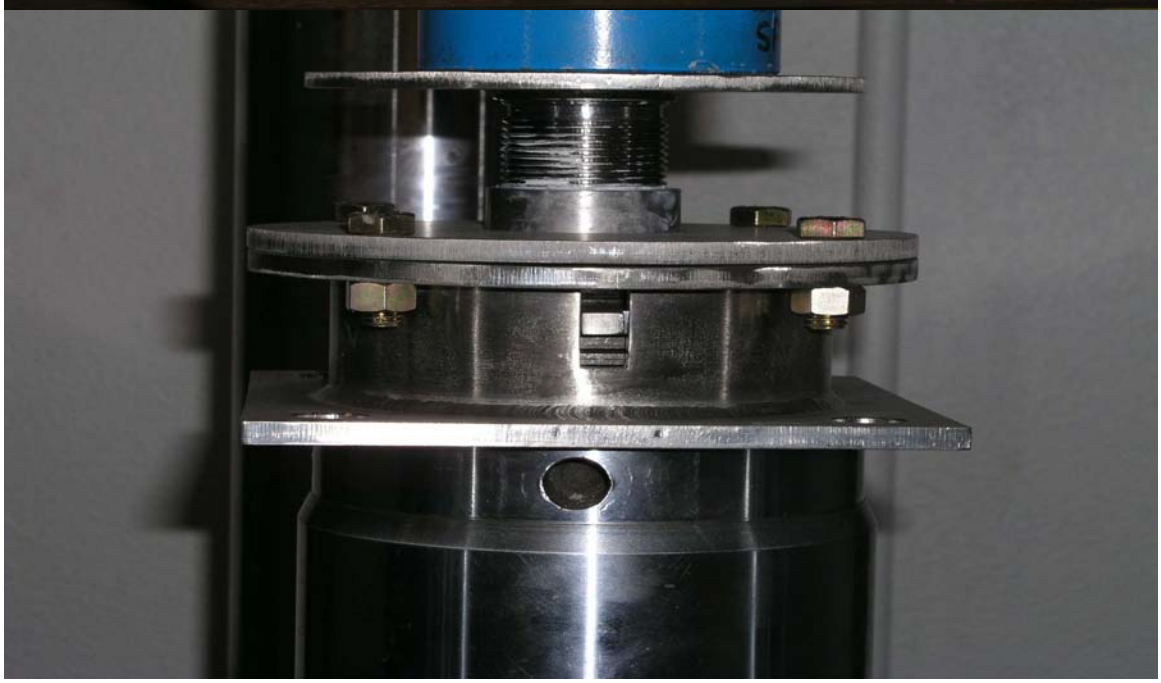


CS SPRINGS
Disc Spring XY Test 5K-4
Load vs. Displacement
Max Load 191 Lb.
Max Displacement 0.471 in.
0.005 in/sec loading rate
X = Displacement (inch)
Y = Load (Lbs)

TEST RESULTS FOR STAINLESS STEEL DISC SPRINGS:

	SS SPRINGS Disc Spring XY Test 5K-1 Load vs. Displacement Max Load 173 Lb. Max Displacement 0.501 in. 0.0025 in/sec loading rate X = Displacement (inch) Y = Load (Lbs)
	SS SPRINGS Disc Spring XY Test 5K-2 Load vs. Displacement Max Load 171 Lb. Max Displacement 0.504 in. 0.0025 in/sec loading rate X = Displacement (inch) Y = Load (Lbs)
	SS SPRINGS Disc Spring XY Test 5K-3 Load vs. Displacement Max Load 175 Lb. Max Displacement 0.508 in. 0.005 in/sec loading rate X = Displacement (inch) Y = Load (Lbs)
	SS SPRINGS Disc Spring XY Test 5K-4 Load vs. Displacement Max Load 172 Lb. Max Displacement 0.503 in. 0.005 in/sec loading rate X = Displacement (inch) Y = Load (Lbs)





Picture#1 - DST Pipe Support System 125 SS Type F

Picture #2 – DST Pipe Support System 125 SS Type F during Load Testing at Columbia Basin College, Pasco, WA

Conical Disc Spring Data Sheet

Customer:				
Engineering Consulting Company:				
Project: Crude FCC	**Item No:**	**Pipe Sup't: 102**		
Contact Name	**Phone:**	**(509) 371 3092**		
Contact Fax:	**Extention:**	**X-324**		
Contact Email:				
Quotation No:	**Date:**	**10/27/06**		

Basic Information	**Example**		**Fill In Info.**	
Client Drawing No./ Support No.	FCC-100-PP-2011	PSU-102		
Client Isometric Dwg. No./Line No.	FCC-100-14018	CS16"-Sch. 40		
Disc Material: (CS / SS / Special Alloys)	17/7 PH Stainless Steel			
Housing Material: (CS / SS / Special Alloys)	304 Stainless Steel			
Temperature: Ambient / Design °F	70.0	200.0		
Corosion Allowance: (Housing / Disc) Inch	0.1	0.000"		
Corrosion Protection: (Paint / Galvanize / SS)	N.A. - All Parts Stainless Steel			
Pipe Shoe Insulated	Yes	---		
Pipe Shoe Guide: (Needed or Not Needed / Guide Gap)	Needed	0.25"		
Application: (Static or Dynamic / Inside or Outside)	Static / Outside			
Required Delivery Date:	Sept. 2007			
Disc Spring Spport Specification				
Fig. No.	250SS			

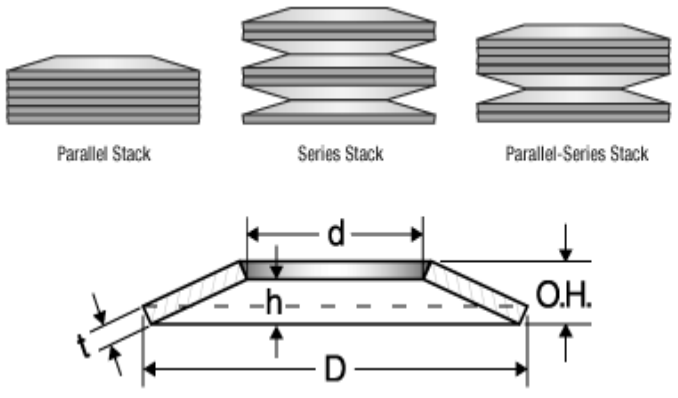
	Example		**Fill In Info.**	
Needed Spring Support Design Information	**Load**	**Deflection**	**Load**	**Deflection**
Cold Load Lbs	6500.000	---		
Hot Load Lbs	8850.000	---		
Total Movement Inch	---	0.335		
MSS-SP-58 (Yes or No / Percent Variation)	Yes	25% Max		

Bid Price & Delivery Information (Example)

Spring: CS 250-103 w/accessories	$	$1,135 Each F.O.B.
Total Price	$	10 x1,135 = $11,350 F.O.B.
Delivery		90 Days after client approval of sppring support dwgs
Field Support	$	$95 / Hr. Plus Travel Cost iif needed
NQA-1 / CGD		NQA-1
Exception		None
Payment Terms & Delivery		Negotiable
Shipping Instruction		Include Support Dwg, Installation Procedure, Spare Part List, Certificate
Approx. Shipping Weight		3,300 Lbs
Cancellation Charge		30% after P.O. until dgs approval, 70% afterward

Accessories: Need one SS Hanger 1" Dia.x 66" long Rod, two Turn Buckles

Spring Stack Detail



Remarks

Making the world a better place.

Small Movements Large Load

Phone No.: (509) 806-2782

Richland, Wa.

DST offers spring supports for corrosive environments

DST Engineer: BVM, Chkr: JOT

Terms and Conditions

Guarantee: We guarantee for one year from date of delivery our manufactured products to the extent that we replace those having manufacturing defect when used for the purpose which we recommended

Claims:

1) Any use of DST products in a manner, which is not intended, will result in voidance of above guarantee.
2) No claims for shortages allowed unless made in writing within ten days of receipt of goods.
3) All rights are reserved by DST; unauthorized use of any information contained in this catalog is strictly prohibited.

Disclaimer:

1) DST reserves the rights to change and/or improve the spring support design, specification, and drawings without any notification. Every effort has been made to assure the accuracy of information contained in this catalog. DST does not accept any responsibility or liability due to inaccuracies resulting from undetected errors and omissions.
2) All materials sent out will be carefully examined, counted and packed. Claims for goods damaged or lost in transit should be made on the carrier, as our responsibility ceases on delivery to the carrier.

Returns: DST cannot accept the return of any spring support products unless an authorized DST person has given written agreement in which case it will be credited subject to the following:

1) Any returned materials to our plant must be found in its original first class condition. If not, DST reserves the rights to deduct a reasonable, fare value from the purchase order price.
2) A minimum of 25% charge will be applied to reduce the purchase order price.
3) Transportation charges, if not prepaid, will be deducted from the purchase order price.

Special Orders: Orders covering special or non-standard goods are not subject to cancellation except on such terms as we may specify on application.

Taxes: To the prices and terms quoted, there will be any sales tax payable on the transaction.

Freight Allowance: All prices are F.O.B. factory or point of shipment with no freight allowed.

Advantage Over Helical Coil Type Spring Supports

The DST Spring Support System utilizes a completely corrosion free, compact design.

DST Spring Supports offer an advantage over helical coil type spring supports in following the areas:

- Satisfying small displacements in significantly limited space within a piping system, the DST Spring Support can be fitted under pipe, pumps, heat exchangers, HVAC ductwork and even reciprocating or rotating equipment (i.e. turbines).
- By using the innovative compact DST Spring Supports, the height of a typical helical type spring support can be reduced by 30% to 50% for displacements from 0 to 5/8".
- To reduce maintenance cost and minimize plant shut down time, the entire DST Spring Support is available in stainless steel or other materials suitable for corrosive service.
- DST Spring supports are an excellent choice for satisfying nozzle loads for load sensitive equipment such as compressors, turbines, pumps, heat exchangers, blowers, pressure vessels and storage tanks as well as compact skid mounted equipment.
- The characteristics of DST Spring support allows for quick compensation of the load with a minimum of deflection (movement).

About Disc Spring Technology

Support System By Disc Spring Technology

DST offers over 80 years of combined experience in pipe stress analysis and pressure vessel design using CAESAR II, TRIFLEX, SIMLEX, PIPEPLUS, COMPRESS, APV, BJAC computer programs. Further, DST has extensive industry wide experience in process and utilities piping system design and layout for petrochemicals, nuclear and fossil power plants, pulp and paper mills, sugar mills and food processing plants.

DST Spring Supports Help Meet Following Codes & Standards:

ASME Vessel Codes:	B&PV Section VIII, Div. 1 & Div.2
ASME Piping Codes:	B31.1, B31.3 & B31.8
API Standards:	API 610, APT 617, API 661 API 662, API 620, API 650 & API 653
NEMA :	SM-23

Applications

- Vessel Nozzles
- Turbine Nozzles
- Piggy Back Heat Exchangers
- Pump & Condensate Skids
- Fan Nozzles
- Pump Nozzles
- Compressor Nozzles
- Plate & Frame Heat Exchangers
- HVAC Duct Supports
- Close Couple Piping

DST Spring Supports are Suitable For:

- Large Loads, Small Movements
- Limited Piping Layout Space
- Marine Applications
- Corrosive Environments
- Cryogenics
- High Temperature Environments

Disc Spring Technology, LLC

At DST, our goal is to work with you and provide solutions to your pipe support applications. These solutions will result in optimization of valuable plant space as well as improve the operation of piping system, reduce maintenance and down time requirements.

Please contact DST for questions related to any Disc Spring support applications or engineering services on stress analysis.

Phone: 509.544.0578

Contact Disc Spring Technology, LLC

Bart V. Makadia, P.E
Director, Engineering
Phone: 509.554.0578

Klaus P. Redmann
Director, Marketing & Quality
Phone: 509.554.0578

Kirk V. Leonardi
Director, Research & Development
Phone: 208.932.6508

James O. Taylor
Director, Fabrication
Phone: 301.676.8889

Disc Spring Technology, LLC
1693 April Loop
Richland, WA 99354
Phone: 509.554.0578

www.dstechnologyllc.com