HVAC

INTRODUCTION TO SPRING MOUNTS

Introduction to Spring Mounts

There are five series of *Spring Mounts* manufactured locally by ARNOT Vibration Solutions. The application can be fitted with spring mounts directly mounted on the floor, or on a steel base or on a concrete filled base.

SLFA, B & C type mounts are open spring mounts that provide at least 25 mm deflection at rated loads up to 950 kg.

The SLH series are high deflection spring mounts designed for 50 to 75 mm deflection at rated loads up to 7520 kg. We have standard designs, or we can make special designs, for mounts giving 100 mm deflection or more and rated up to 18000 kg.

C type mounts use the A, B and C range of springs located in a robust 2-piece cast housing that gives extra horizontal stiffness. The two halves of the housing are separated by sponge rubber inserts which prevent metal to metal contact and limit movement during start up and shut down. Maximum capacity is 3800 kg.

The *SLR* range is a special design of restrained spring mounts for use with equipment such as chillers and boilers which have different weights when empty or filled with water, and equipment exposed to strong winds on roof tops such as cooling towers.

Spring mounts are equipped with height adjustment bolts which are used to compress the spring, lift the equipment off the floor and permit accurate leveling. The operation is most conveniently carried out using height saving brackets, as explained and illustrated on the next page.

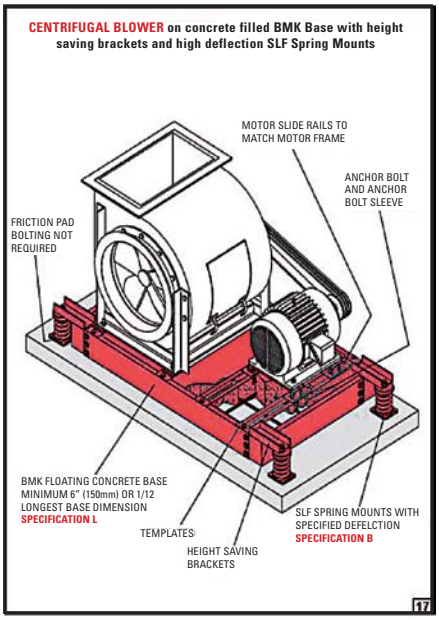
APPLICATIONS - CENTRIFUGAL FANS

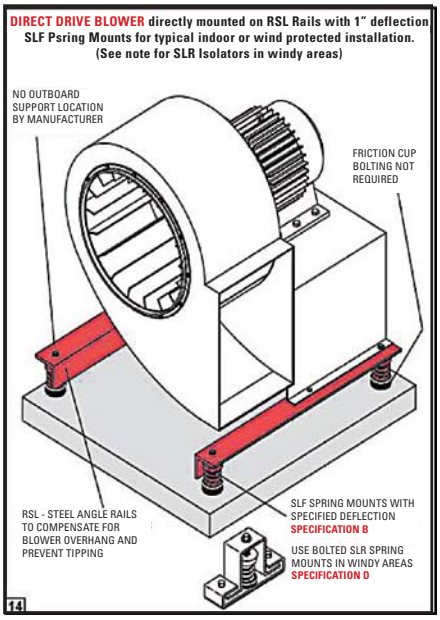
Spring mounts are used to isolate all types and sizes of fans or blowers.

The required spring deflection is determined by fan speed, motor power, equipment location and floor stiffness in the Engineering Section.

Bases can be made of structural steel or concrete. Concrete greatly increases the stiffness of large bases and prevents flexing at the corners.

The illustration shows a steel base with SLF mounts





Introduction to Spring Mounts

CENTRIFUGAL PUMPS

Spring mounts are excellent for all pump isolation problems. Bases should be made large enough to support the suction and discharge elbows if possible.

Bases must be rigid to maintain shaft alignment. The illustration show concretes a steel base with high deflection SLF mounts.

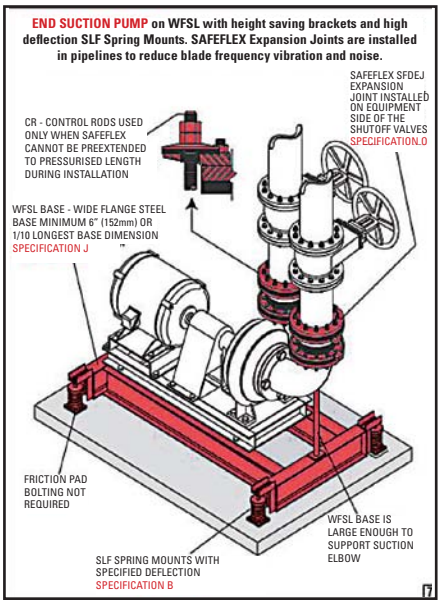
Height saving brackets makes it easy to lift the equipment off the floor.

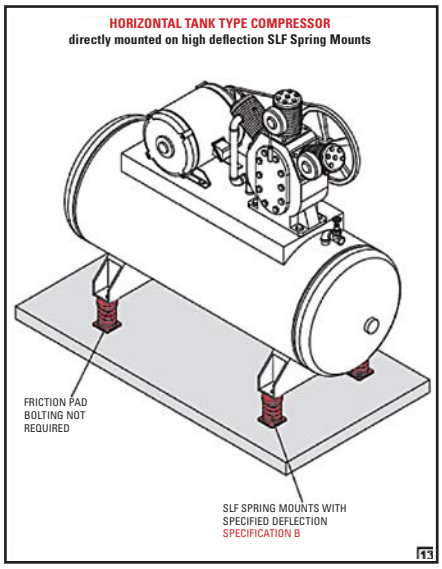
COMPRESSORS

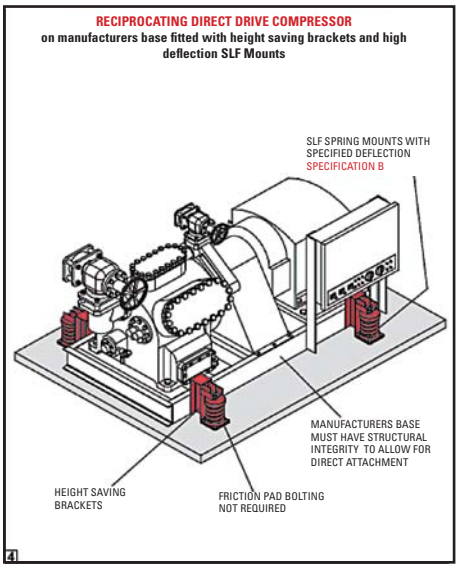
Spring mounts are particularly suitable for reciprocating compressors, with higher deflection springs necessary for slower speed compressors.

Mounts must be properly selected to ensure they compensate for uneven weight distribution at the compressor end and motor end and provide equal or nearly equal deflection.

In the illustrations the belt driven compressor above stands on SLF type mounts and the small direct coupled unit below on SLF mounts with height saving brackets.

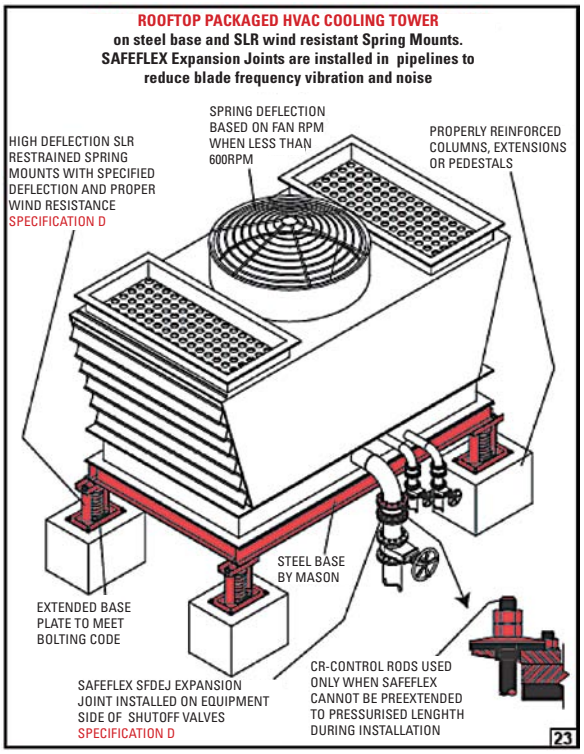


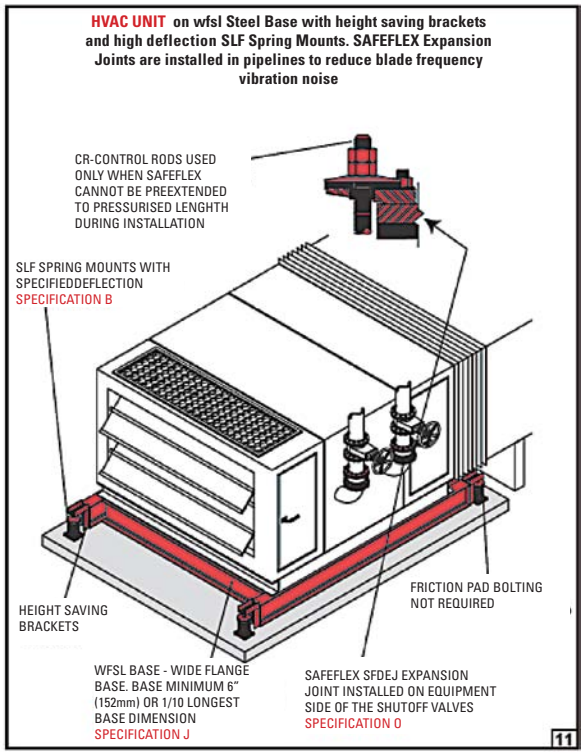


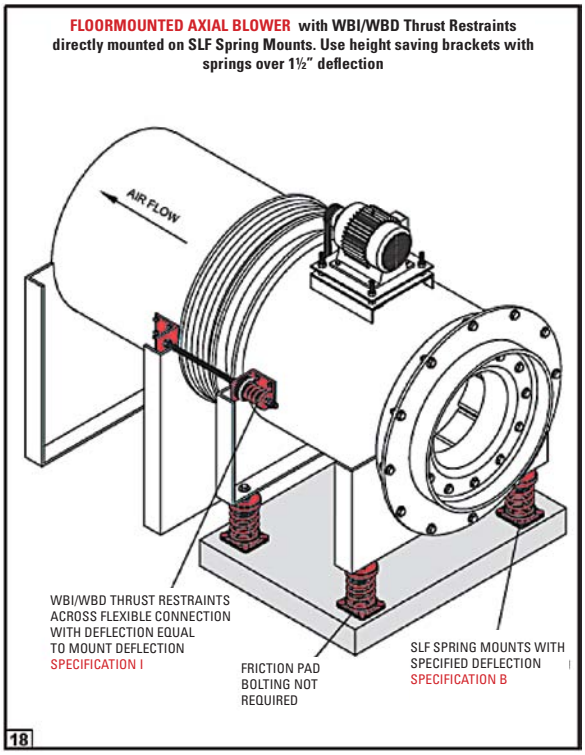


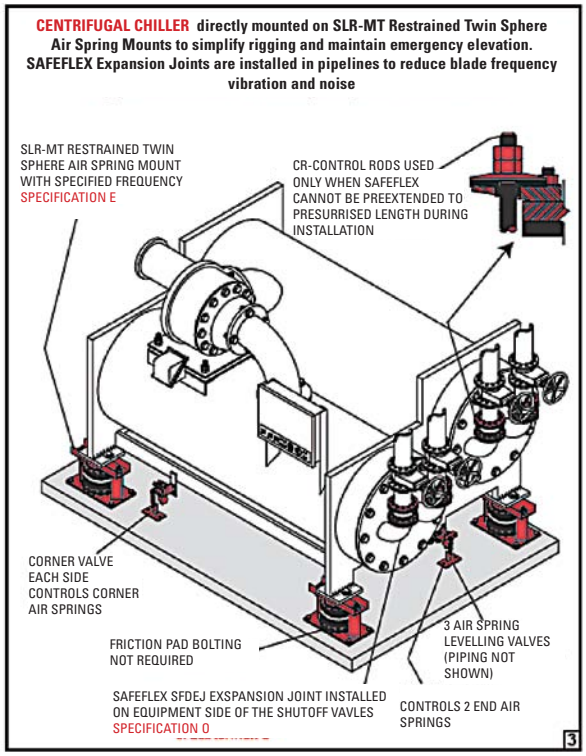
Introduction to Spring Mounts

OTHER APPLICATIONS





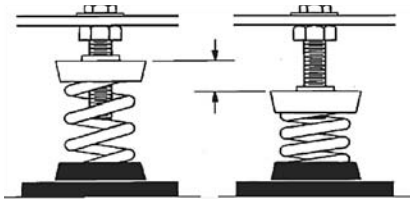




Introduction to Spring Mounts

ADJUSTMENT BOLTS

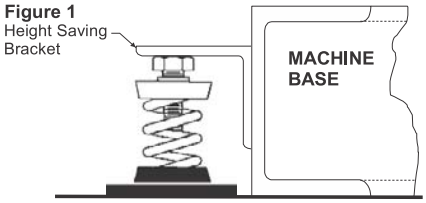
Spring mounts (except for Type SL) are equipped with Height Adjustment Bolts. The amount that the spring is compressed by the load it has to support can be compensated by unscrewing the adjustment bolt by the same amount, so that the Free Height (before loading) and Operating Height (after loading) are the same.



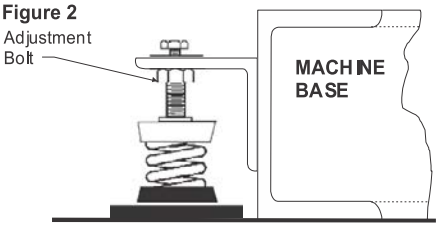
HEIGHT SAVING BRACKETS

Height Saving Brackets are an accessory that can be added to equipment bases so that spring mountings can be used not only to isolate vibration from the floor but also to jack the equipment base off the floor to the required elevation, and then level it.

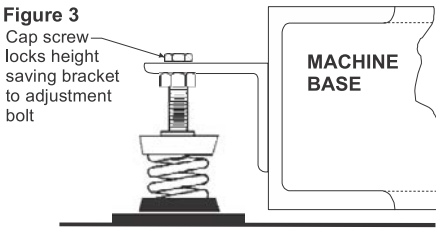
Figure 1 shows a base with a height saving bracket welded or bolted on. The underside of the bracket is located at the elevation of the spring mounting's "free height".



When the adjustment bolt is turned anticlockwise, and comes up against the height saving bracket, it starts to compress the spring, as in Figure 2.



When the spring is compressed by the amount necessary to accept the load it will not compress any further. Any additional turning of the adjustment bolt will lift the base off the floor as in Figure 3. The procedure is to work around the equipment from mounting to mounting (4 or 6 or however many), adjusting each a little at a time, until they are all taking their load. A further couple of turns of each bolt will then raise the equipment to the required elevation. A final adjustment will ensure the base is level.



If in the above process the base has been lifted say 10 mm above the floor that does mean that the base is that much higher than at its starting elevation, when it was resting on the floor. That might spoil the alignment of a fan's flexible duct or a pump's pipe connections if they were already installed when the base was elevated. An alternative procedure is to place spacers under the base (say 10mm thick) to lift it to its final elevation, as in Figure 4. In that case the height saving bracket must be attached to the base 10 mm lower. Then follow the same procedure as before. When the springs are sufficiently compressed to accept the load it requires only another quarter turn of the adjustment bolt for the spacers to come free. The base is then "floating" at its original elevation.