

Contitech Airspring Systems

Toughness level and Service life indication

Contitech Airspring Systems, a part of the giant Continental Corporation manufacture a range of air spring systems now available in UK for the first time from FTL Seals Technology of Leeds.

The Airspring elements are manufactured from a composite elastomer and synthetic fabric material in a process not unlike radial car tyre manufacture. This gives an indication of the level of toughness and service life that can be expected.

[Contitech Airspring System >](#)



Contitech Airsprings are best visualised as a hybrid pneumatic cylinder cum spring cum vibration isolator. The range breaks down into 3 designs which have been developed to maximise the unique features of the product. They are:

- Air springs
- Air actuators
- Air isolators

For such an apparently simple design the Airspring has a number of interesting properties, which when compared with the alternative metal or elastomer spring element can be used to advantage.

Constant Natural Frequency

The Airspring possesses a constant natural frequency irrespective of load and height. A “normal” compression spring suffers a decrease in natural frequency as the load increases and a converse increase as the load decreases. This feature can be of benefit in applications such as vibrating screen graders where the load changes constantly but the frequency determines the rate of feed which ideally should remain constant.

Vibrating conveyors and screening equipment would be a suitable application for capitalising on these properties.

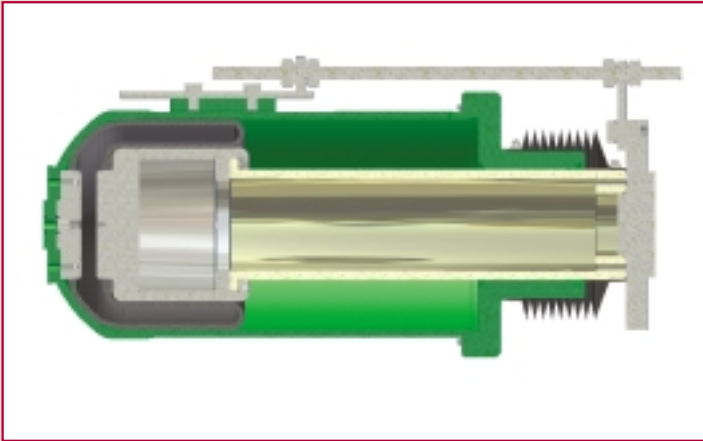
Constant Operating Height

The Airspring generates its load capability by means of a variable internal pressure, (most normally air). Compared to a steel compression spring which decreases in height as the load increases the Airspring maintains constant height by simply increasing the air pressure. A constant height control mechanism can be supplied to maintain constant height even under fluctuating load conditions.

Machinery such as industrial weighing equipment that can be subjected to alternating loads caused by differing charge weights can make full use of this feature

Force Generated

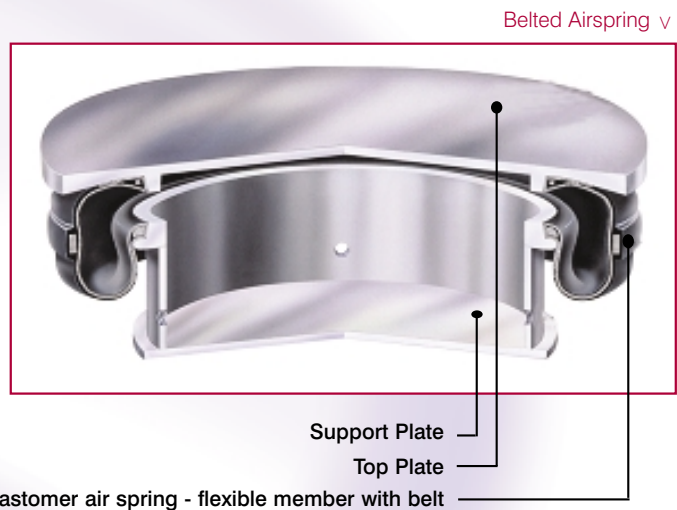
A normal pneumatic cylinder generates a constant force through out its stroke length. Because of the internal geometry of the Airspring the load decreases with an increase in stroke. However a rolling lobe air spring overcomes this and is able to provide constant force for most of its stroke length. This feature can be used to advantage on air suspension systems where both a raising cycle can be used prior to a constant load being applied.



Airsprings as vibration isolators

Airsprings not only exhibit constant natural frequency but it is also very low (typically between 0.5 and 3.5Hz depending upon configuration). This can be used to advantage on all types of equipment to isolate inbuilt vibration.

It is possible on heavy duty machinery (above 50 tons in weight), with an excitation frequency in the 20-30Hz spectrum, to isolate 98% of the vibration within the air isolation system, such as grinding mills, rotary crushers and large ventilation fans



Range of media and operating pressure

Elastomeric/synthetic fabric air springs are most normally associated with compressed air up to 8bar pressure as the working medium. However special construction and locating techniques allow pneumatic pressures of up to 18-20 bar to be employed.

By altering the choice of elastomer it is also possible to consider the use of fluids such oil or water as the energising medium. Temperatures up to 100°C are also possible.

The unique features of Contitech Air springs and Air Isolators are further explained in a free design guide along with an application engineering service from FTL Seals Technology Ltd.

Temperatures up to 100°C



FTL SEALS TECHNOLOGY
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