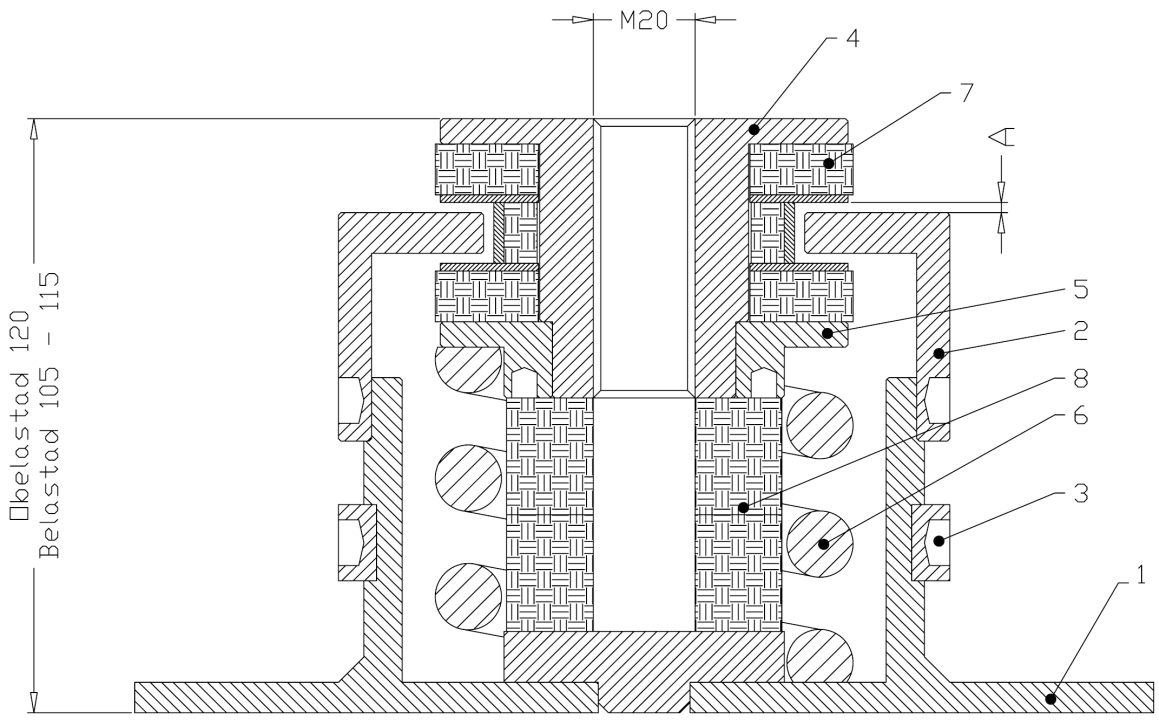
Installation instruction VT41XX

Spring isolator VT41XX is specially designed for vibration isolation of equipment in mobile applications such as propulsion engines, generator sets, compressors, fans, cabins etc.

VT41XX is made of steel, contains a soft spring and has integrated adjustable movement limiters to delimitate the operational movements caused by external forces (for instance roll and pitch). To obtain optimal vibration isolation these integrated movement limiters need to be adjusted during installation. When correctly adjusted all static load is carried by the spring hence the movement limiter is ”free”. It is vital that the limiter does not carry any load – its sole function is to take up the extra forces arising during operation.



1. Bottom plate
2. Upper part
3. Locking ring
4. Axle
5. Axle nut
6. Spring (load bearing)
7. Elastic elements (movement limitation)
8. Elastic element for increased damping

Installation of isolator and adjustment of its integrated movement limiter

Important: The adjustable movement limiter should NOT be used to compensate for unevenness in the engine bed or frame, neither for alignment of the installation.

The installation is dons in the following order
1. Compensation of unevenness in foundation/engine bed
2. Installation of engine and isolators
3. Adjustment of the integrated movement limiters of the isolators
4. Alignment of the installation

1. Compensation of unevenness in engine bed

Problems with an uneven foundation can be solved by means of steel shim plates or pourable choking. The foundation should not differ more than max ±2 mm along the complete engine bed.

2. Installation of engine and isolators

The installation should be done in such a way that the isolators are positioned horizontally - inclination will cause side forces from the static load (also during stationary conditions).
The isolators must also be centred with the holes in the engine mounting brackets (no lateral displacement of the isolator axle).

3. Adjustment of the integrated movement limiters

The final adjustment should be done once the engine is in its “operational condition”, ie when water and oil have been filled and all equipment is installed.
Adjustment is done by hand or by use of a so called tap wrench. The upper part is turned until a gap (A) of approximately 2 mm is obtained between the upper part and the movement limiter. Thereafter the upper part is locked in its position with the locking ring.
Installed building height (loaded height) should be 105 - 115 mm depending on load. With correctly adjusted movement limiters the maximum movements at the isolator will be ± 4 mm in all directions.

When the isolators are used for propulsion engines (or similar applications with an outgoing torque) further adjustments can be needed to obtain max vibration isolation. This adjustment is done during operation when nominal outgoing torque also is influencing the suspension. Before this is done Vibratec should be consulted as this second adjustment might affect the vibration isolation during idle speed. This adjustment is done according to the same principles as described above. Whether the movement limiters should be adjusted up or down is depending on the direction of the torque and thus depends on the rotational direction of the outgoing axle. Vibratec can assist in calculating the after adjustment if necessary input data is at hand.

Once the adjustment of the movement limiters is finalized the engine can be aligned with suitable method.

4. Alignment of the installation

Alignment of the engine should be done above the isolators. Alignment can be done by means of washers. Also adjustment bolts can be used but this increases the risk of torque into the isolator and inclination of the isolator axle. Please note that ”building towers” on top of the isolators should be avoided; if the alignment calls for more height this should be solved by use of shims below the isolators.

In case of questions please contact Vibratec.