Technical instructions

Design and mounting of Stabilus IndustryLine products

Must be observed prior to mounting, construction or storage!

1. If gas springs, tension springs or dampers are used in environments where a failure of the product can lead to damage to persons and/or material damage, additional security elements must be applied. When installing/removing gas springs or tension springs, accident prevention measures must always be kept in mind. Stabilus IndustryLine products may only be used in the aviation, aerospace and shipping industry with written authorisation of Stabilus GmbH.

2. Installation + storage of the products: Gas springs must be stored with the piston rod pointing downwards, tension springs with the piston rod upwards, dampers with the piston rod downwards. Pressure losses as a result of storage according to the instructions are not to be expected; however, the products should not be stored for longer than 6 months. When using the products for the first time (compression/extension of the piston rod) after longer periods of non-use, it is possible that a sticking effect (slip-stick effect) occurs; therefore, stronger forces are required to compress or extend the piston rod. Prior to installing the products, the film tubing must be removed.

3. Gas springs, tension springs and dampers are not safety parts. Gas springs, tension springs and dampers are wear parts and thus must be replaced depending on the stress applied and the area of application. They must be particularly protected from corrosion in order to increase their lifetime and durability. Small amounts of hydraulic oil can escape from the products; these must not come into contact with food or ground water.

4. Filling of the products is only allowed with written authorisation of Stabilus GmbH.

5. Do not open – high pressure! Do not heat to more than 80 °C!

6. Make sure there is sufficient play in the cylinder hook-ups, i.e. avoid rigid installation. If required, lubricate cylinder hook-ups in order to achieve lower friction forces and an increased lifetime of the fittings.

7. Screwed-on fittings (lugs etc.) must be screwed in completely and rest firmly on the face if required. Possibly loose fittings must be screwed on completely prior to installation. Should vibrations occur, the fittings must be secured against twisting (by gluing in).

8. Make sure the piston rod does not get jammed (for long strokes/products, an additional bearing/guide must be provided for the product; sagging, bending or kinking must be avoided).

9. Only axial loads are permissible (risk of kinking!). Cross or torsion forces must not occur.

10. Gas springs must not be stressed on extension, tension springs not on compression.

11. Gas springs, tension springs as well as dampers may be used as end brackets if the nominal force +30 % is not exceeded (no overstretching or jarring of the product), i.e. the products may only be loaded with their nominal force +30 % on compression or tension. Mechanical brackets should particularly be applied in addition in case of strong forces in order to rule out a jarring or overstretching of the product.

12. Temperature range for use −20 °C to +80 °C. For use in temperatures below 0 °C, we kindly ask you to specify this. In case of temperature variations, the compression or tension forces of the products also change. The viscosity of the oil also changes if temperatures vary. (Change of the damping behaviour, particularly for dampers)

13. Small damage, corrosion or paint residues on the piston rod lead to a failure of the spring (sealings are damaged). The cylinder tube must not be damaged or deformed. Generally, all changes to the product made by third parties result in an exclusion of warranty.

14. Tension springs are open systems, i.e. it must be avoided that dirt or other media get into the tension springs through the ventilation hole at the cylinder end. (Installation with the piston rod pointing upwards). During installation, it is necessary to make sure that the tension springs are not installed in closed systems but in ventilated systems, in which condensate cannot develop due to temperature variations.

15. Locking gas springs have a tube as the piston rod, which contains a release pin. It is necessary to prevent foreign media such as dirt or cleaning agents from getting into the piston rod hole. This can lead to corrosion in the piston rod and cause the release pin to get wedged. Preferentially, the locking gas springs should be installed with the piston rod pointing downwards. If locking gas springs are used in environments where they get into contact with cleaning agents (hospital beds), this generally must be specified. Maximum number of release activities approx. 30,000.

16. Warranty is excluded for any installation suggestions/drawings for gas springs, tension springs and dampers. It must be considered that not all installation parameters can be included in the theoretical suggestion; therefore, the installation must be carried out with utmost care in practice, since friction values or accelerations cannot or can only roughly be considered in the theoretical suggestion.

17. The installation or use of gas springs or tension springs should generally be tested by the user under operating conditions, since the operating or installation conditions are very varied and thus not all parameters can be simulated or tested at Stabilus IndustryLine. It is generally necessary to specify whether the products are used under normal conditions (20 °C, natural environment = air) or whether foreign media (e.g. water vapour >80 °C, diverse chemicals, cleaning agents) impact on them.

Tolerances/characteristics/disposal

1. Maximum pressure = 160 bars (20 °C)

2. Maximum stroke speed = 300 mm/s in installed state.
   Attention: High stroke speeds or stroke frequencies lead to an overheating and thus to damage to the sealings and the failure of the product. High stroke speeds or accelerations must not lead to an overload of the product.

3. Length tolerance of the products = +/−2 mm

4. The tolerance for compression or tension forces generally is: (exact values in our testing instructions) minimum +/−3 Newton +/−5 % of the nominal force; maximum +/−10 % of the nominal force (20 °C). The nominal force is measured statically at extending stroke (for tension springs, at compressing stroke) 5 mm before stroke end (standard). Release force for pushing in the release pin for locking gas springs: approx. 18 % of the nominal force F1 of the gas spring.

5. Lifetime: Depending on the function, the series and the stroke of the gas spring, a lifetime of more than 50,000 load changes is possible. Environmental influences and the installation situation can significantly reduce the lifetime. You can obtain further information on the lifetime of the spring you have selected from our technology department.

6. Disposal: Dampers, gas springs and tension springs are under pressure. They must not be opened or heated up. The products may only be opened according to the instructions by Stabilus GmbH (on request, you can obtain them by post). All products have an oil filling; this must be disposed of according to the Waste Management Law.

Warranty is excluded for any non-observance of the above instructions.