

Technical Instruction

Pay attention to these instruction before designing, installing or storing!

- 1. If gas springs, tension springs or dampers are fitted in applications here their tailing would mean a risk of health or life, additional locking mechanisms must be employed.** The mounting and dismantling of gas springs, tension springs and dampers must be carried out according to safety rules. Eckold products must not be applied in the aircraft, spacecraft or boat industry.
 - 2. When mounting/storing**
gas springs: piston rod must point downwards
dampers: piston rod must point downwards
tension springs: piston rod must point upwards
A loss of pressure due to long storage is not to be expected, but we do recommend not to store the products longer than 1 year. There may be a sticking effect (slip stick) when the spring is operated the first time after a long rest. Therefore the force for retraction or compression will be higher than the given nominal force. Before installing the springs the foils are to be removed.
 - 3. Gas springs, tension springs, and dampers are not safety parts.** Gas springs, tension springs, and dampers wear out after a certain period of time. Corrosion must be avoided to achieve higher life expectancy and fatigue strength. Minor quantities of hydraulic fluid may leak from the products. These must not get in contact with food or similar goods or subsoil water.
 - 4. Make allowance for play in the joints, if there are vibrations the fittings need to be fastened against loosening.**
 - 5. Avoid tilting of piston rod.** Long strokes need additional guidance or particular bearings to avoid bending and tilting of the product, nonaxial forces must be avoided.
 - 6. Even minor damage, corrosion or paint residues on the piston rod may result in a failure of the unit (damage of sealing).** The cylinder must not be damaged or deformed. Any change of the product through third parties will expire any warranty/guarantee.
 - 7. Gas springs must not be loaded with traction forces, tension springs not with compressive forces.**
 - 8. None of the gas springs tension springs, and dampers must be extended or retracted over their respective limit stops in both the closed and open position.**
 - 9. Tension and gas springs may be used as a limit stop.** However, the tension or compression load must not exceed the nominal force + 30%. Torsion or transverse forces must be avoided. Where possible, physical stops should be employed, limiting the extended and compressed lengths of the products to within 5mm of their maximum closed and open lengths.
 - 10. Use products only within a temperature range of -20° to +80°C, if used in the former – or even lower temperatures – please inform us in any case. Do not heat up over 80°C.**
Temperature variances affect the extension and compression force (approx. 3% of nom force by a change of 10°C). The oil's viscosity also changes to avoid non-usability this must be taken into account.
 - 11. To re-charge the springs you need a written approval from us.**
 - 12. Tension springs are open systems. It must be avoided, that dirt or other mediums may enter the spring through the hole in the cylinder base plate.** Tension springs should be mounted with the piston rod upwards. The springs may not be used in closed applications where there is due to temperature changes.
 - 13. A locking gas spring's piston rod is in fact a tube in which a plunger is.** Should dirt or detergents get into the piston rod's inside this may cause corrosion which then leads to the plunger sticking fast. Preferably locking springs should be mounted with the piston rod downwards. If locking springs are installed in places where they may get into contact with detergents (hospital beds), this must be indicated in your order. Max. number of release operations = 30000.
 - 14. We cannot guarantee for application proposals or drawings since there may be parameters not indicated and therefore not taken into account on the enquiry.** Hence caution must be applied when mounting the gas springs. Generally the order must indicate whether the springs are used in "normal" conditions (20°C, natural environment = air) or whether other mediums (water steam > 80°C, chemicals, detergents, etc.) are involved.
 - 15. The application and employment of gas springs, tension springs and dampers ought to be tested by the user because the varying employment situations of our products cannot be simulated by us and the products behaviour may differ from case to case.** High acceleration or velocities during extending or compressing must not lead to overloading the product.
 - 16. Gas springs are custom made units, and will not be taken back without justifiable reason.**
- ## Tolerances/characteristics/disposal
- 1. Length tolerance on the products is +/- 2mm, force tolerance between $\pm 3N \pm 5\%$ of the nominal force and 10% of the nominal force (depending on the nominal force).**
(Exact tolerances are given in our force measuring instructions. Force for releasing locking gas springs = 18% of nominal force of the spring.)
 - 2. Maximum pressure 160 bar (at 20°C)**
 - 3. Maximum speed of the piston is approx. 300mm/s.** Fast operation rates will lead to excessive heat build-up with subsequent internal seal damage. High acceleration or velocities during extending or compressing must not lead to overloading the products.
 - 4. Life expectancy: gas springs, dampers (stroke 10 Km), tension springs (stroke 2 Km) (optimal conditions)**
 - 5. Gas springs, tension springs, and dampers are under pressure and filled with oil. For disposal please read our respective leaflet thoroughly.**
- No warranty/guarantee applies if our instructions are not being followed.**