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Gas spring general specification

These basic clients engineering instruction defines the minimum requirements that a gas spring must comply with to fulfill its functionality, reliability and safety requirements.

Requirement for the gas springs

I. Operating environment

- The gas spring shall achieve normal operation at a working temperature range of -30°C to 80°C/-22°F to 176°F
- Degradation of performance due to atmospheric conditions shall be minimized at temperatures below -30°C/-22°F or above 80°C/176°F unless otherwise specified.
- The gas spring shall achieve normal operation in environment where it could be in contact for a short or medium period of time with:

• Coolant	• Dirt
• Salt	• Motor oil
• Hydraulic oil	• Cutting oil
• Water	• Sulfuric acid (battery fluid)
• Diesel	• Windshield washer fluid
• Methanol	• Detergents

Chemical resistance coating:

• Sulfuric acid	• Ethanol
• Phosphoric acid	• Isopropyl Alcohol
• Methyl Ethyl Ketone	• Diethylene Glycol Monobutyl Ether
• Nitric acid	• Unleaded gas
• Ammonium	• Skydrol
• Sodium Hydroxide	• Detergents, bleach

Performance coating:

• Abrasion & Mechanical	• Excellent
• Alkalis	• Excellent
• Humidity	• Excellent
• Acids	• Excellent
• Solvents	• Excellent
• Color and Gloss retention	• Excellent
• Salt	• Excellent
• Water	• Excellent

II. Performances

- The gas spring shall be able to achieve 5,000 cycles in the worst conditions depending on application, stroke length and force.
- The gas spring shall be able to achieve a 70,000 cycles at 20°C +/- 2°C and humidity of 60 percent depending on application, stroke length and force.
- No oil leakage must be found on the gas springs after 5,000 cycles in the worst conditions
- Standard piston speed at 20°C +/- 2°C and humidity of 60 percent shall be 250 mm/s +/- 10 percent.
- No fluids listed shall be able to get into the cylinder by the rod seal.

III. Force tolerance

- Gas springs are tested compressed 5 mm before the nominal force test can be performed.
- Force is measured at 20°C/68°F +/- 2°C/35°F
- The nominal force tolerance of a gas spring is approx +/- 5-7%.
- All gas spring must be tested vertically (rod down position).
- With each temperature change of 10°C/50°F the force will change with approx. 3.5%
- After 70 000 cycles at 20°C/68°F +/- 2°C/35°F and humidity of 60 percent, the gas spring shall not lose more than 5% of its nominal force. Depending on application, stroke length and force this figure may be less or more.

III. Progression

Progression rate (pressure increase when compressed) at the nominal force at 20°C/68°F +/- 2°C/35°F and humidity of 60 percent depends on type of gas springs and or cylinder volume.

IV. Gas spring with lockable rod protector

- Water and dirt shall not be able to malfunction the lockable rod protector.
- Lockable rod protector with label “ push here”

V. Salt spray test.

- Testing solution : 5±1%NaCl Solution
- Settlement : 1.5±0.5ml/80cm².H
- Temperature : 35±2°C Saturation Temperature : 42±2°C
- Placement angle : 25 degree angle
- Spray Method : Continuous spraying for 96 hours