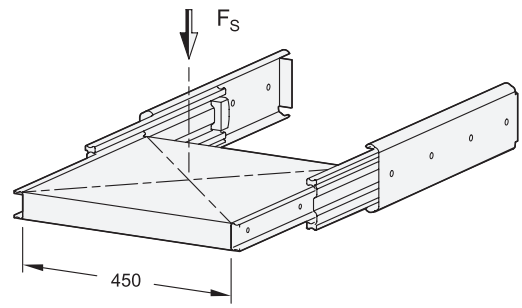
Load capacity

The maximum load capacity of telescopic slides depends on the slide profile, the nominal length l_1, and the resulting stroke l_2. Furthermore, the extension width, the slide materials used, and the parts of the component options, such as the dampened self-retracting mechanism, have a considerable influence.

The information on the maximum load capacity of the telescopic slides was determined in fatigue tests under the following conditions:

- Slide arrangement vertical in pairs
- Observance of all mounting information
- Warp-resistant test set-up
- Equal distribution of the load F_S throughout the extension finish
- Standard slide spacing of 450 mm
- 10,000, 50,000 or 100,000 test cycles (one extraction and retraction = one cycle)
- Gradual increasing of load



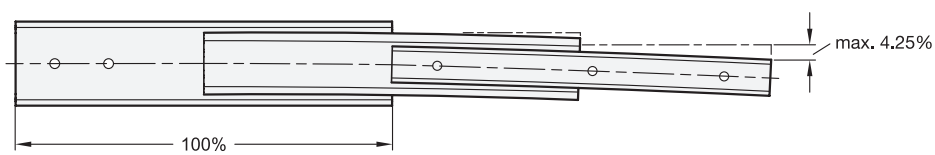
Wear, performance, and maximum bending were assessed after every test segment.

Bending

Telescopic slides demonstrate elastic bending under load in the extended state. The bending is most noticeable at the far end of the inner slide. The general rule is that the extent of deformation may not be higher than 4.25 % of the stroke path. All slides are within this value on maximum load.

Example:

A telescopic slide having a nominal length of l_1 = 500 mm is moved to the end position and stressed with the maximum load throughout the extension finish. The bending at the front-most point of the slide may now be a maximum of 21.25 mm.



Tolerances

All components of the telescopic slides are subject to manufacturing tolerances that ensure consistent quality and a long lifespan.

Since the stroke results from the interaction of all individual parts of the telescopic slides, the sum of all individual tolerances also has to be taken into account for the length tolerance of the stroke. In addition, slight deformation of any existing rubber stops should be mentioned. This results overall in proportionately large total tolerances that are listed on the respective catalog pages and can, therefore, be taken into account in the design layout of extensions.

Travel speed

The permissible extraction and retraction speeds of the telescopic slides are set at a maximum speed of 0.3 m/s. Shortly before the end of stroke, the speed should be reduced to less than 0.15 m/s so that the stops, rubber stops, dampened self-retracting mechanisms etc., do not have an excessive amount of impact stress.

Slide materials, surfaces and corrosion protection

The telescopic slides made by Ganter are manufactured out of high-quality steel or stainless steel bands.

The stainless steel telescopic slides are generally delivered with mill-finish surfaces.

The steel telescopic slides are partly made out of a pre-zinc plated steel band and are subsequently batch zinc plated and blue passivated with 5 to 7 µm. Corrosion resistance in the salt spray test for at least 72 hours against white rust is ensured in this way.

To achieve higher corrosion resistance, finish refinements can be provided on request. Two processes are available:

- Galvanically batch zinc plated 5 to 7 µm, black passivated,
  corrosion resistance in salt spray test for at least 120 hours against white rust
- Galvanically batch zinc plated 5 to 7 µm, passivated,
  electrolytically coated with T2 top coat / sealer 8 to 12 µm,
  corrosion resistance in the salt spray test for at least 96 hours against white rust /
  500 hours against red rust

All materials and finish refinements used are RoHS compliant.

Lubrication and maintenance

Telescopic slides are permanently lubricated with high-quality, mineral-oil-based and lead-free bearing lubricants.

For stainless steel telescopic slides, special FDA-compliant lubricants are used that are tasteless and odorless. The lubricants comply with lubricant class H1, which allows them to be used in areas where it is technically infeasible to prevent occasional contact with food. Generally direct contact can be prevented by taking appropriate actions, such as optimum placement of slides or the use of covers.

Re-lubrication is generally not necessary under normal conditions of use since the ball cages and bearings “push out” small amounts of obtained dirt from the slides when the slides move. In applications where there is heavy contamination, the slides should be cleaned from time to time with a clean cloth and then re-lubricated. Acceptable lubricants for the steel variants are, for example, Shell Alvania EP 1 and Klüberplex BE 31-222.

Cage slip

In the event of quick changes of direction and high acceleration forces, cage slip can occur in the worst case, especially with long ball cages. In these cases, the cage does not move synchronously at half the speed of the middle and inner slides. Instead it loses its correct position gradually due to sliding. In such cases an “idle stroke” may need to be moved in the front and back stop position of the slide, at a moderate speed and under slight load to reposition the cage.

Temperature of use

The temperature of use of telescopic slides is within the range of -20 °C to 100 °C and is determined primarily by the plastic and elastomer parts used in the slides. Depending on place of use and application, the user may have to check the function of the extensions if the temperature is at the limit.