

Accuracy

- The accuracy of the Utilitrak® system is defined differently than typical recirculating ball guides. These are designed primarily for "high end" positioning applications, such as machine tool guideways, Cartesian coordinate robotics and precision XY inspection equipment. These guides are more rigidly defined in terms of the running parallelism of carriages to rail, and are measured as a function of rail length. Their higher cost can be attributed to the grinding and finishing operations necessary to achieve these tight tolerances.
- Utilitrak®, in contrast, has been developed for "lower end" transport applications. The definition of accuracy in this class of guide is independent of channel length, and is measured solely by the parallelism maintained between the critical channel surfaces, this does not vary by more than 0.05 mm over the entire length of the channel. As with any linear guide, installed accuracy is directly related to the straightness and flatness of the surface to which it is mounted. Because the guide will conform to the mounting surface, it is important for that surface to be more rigid than the Utilitrak® channel.

Life expectancy

The sum of the applied loads divided by system load capacity should be less than or equal to 1:

$$LF = \frac{F_R}{F_R(\text{MAX})} + \frac{F_A}{F_A(\text{MAX})} + \frac{M_R}{M_R(\text{MAX})} + \frac{M_Y}{M_Y(\text{MAX})} + \frac{M_P}{M_P(\text{MAX})} \leq 1$$

The applied force on the system is equivalent to:

$$F = F_{R(\text{MAX})} * LF$$

Knowing the equivalent applied load, the system life can now be calculated:

$$L_{\text{km}} = 100 * \left(\frac{C}{F} * \frac{1}{f_c} \right)^3$$

L_{km}	= System life in kilometres
C	= System dynamic load rating
F	= Equivalent load
f_c	= Correction factor

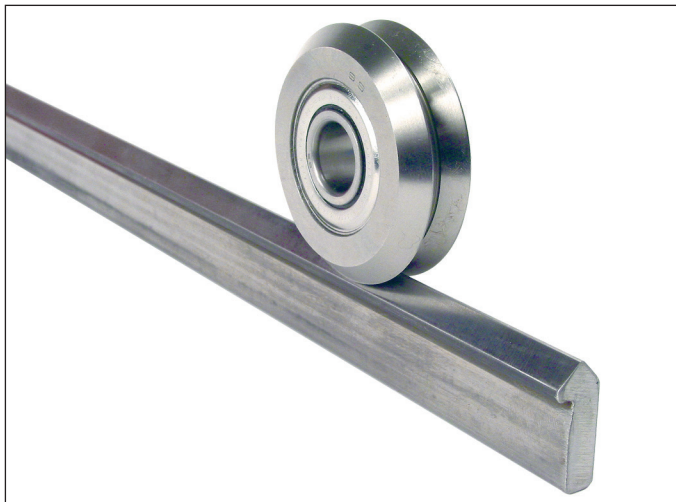
Correction factor table

Environmental factor	Correction value f_c
No shock or vibration, clean working environment, speed <1m/s	1,46
Light shocks or vibration, speed between 1m/s to 2m/s	1,85
Shocks, vibrations, harsh environment, speed >2m/s	3

Simple and easy to use

The half-rail guiding system is an efficient and proven method that offers very precise linear guiding for all sorts of applications.

The arrangement shown below can be assembled quickly and cheaply without the need for special equipment, a drill is all that is required.



Characteristics

The guidance wheels are ground. The rollers are made up of two rows of pre-lubricated angular contact balls, available in protected or sealed versions.

The rails are made of cold-drawn carbon steel. They can be delivered with or without the tracks hardened and polished. The other surfaces are untreated so they can be machined later if required. Eccentric hubs are positioned opposite concentric hubs to facilitate the initial setting-up of the system.