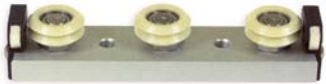
Utilitrak® linear guides

UTK HEPCO Presentation

The UtiliTrak ® linear guide system is designed for applications where low cost, easy installation and minimal maintenance requirements are the primary design objectives.



NEW!

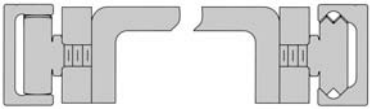
Designed primarily for transport type applications, UtiliTrak® is intended for use where load capacity, stiffness, and positional accuracy are less demanding than machine tool grade applications. UtiliTrak® offers a low cost alternative to recirculating ball guide technologies, which often require a considerable amount of surface preparation, adding significantly to the total installed cost.

UTK- SW: *Hardened and ground steel channel with precision steel wheels.*
UTK- PW: *Aluminium alloy channel with polymer over-moulded wheels.*

Features and benefits

- *Frictionless operation*
- *Low noise*
- *Smooth running*
- *High speed capacity*
- *Unlimited travel lengths*
- *High load capacity*
- *Resistant to contamination by dust*

Mounting on open or V rail



Open channel **V rail**

Load Capacity

- *The load capacity ratings in this guide are based on 100km of service life. As with any linear bearing technology, the choice of the size of the UtiliTrak® track should be done conservatively. If the guide selection is such that load capacities are marginal, it may be appropriate to consider the next larger size.*

Lubrication

- *The recirculating elements within Dualvee ® guide wheels are permanently lubricated and sealed against the operating environment. The contact surfaces between the wheel and channel do however require lubrication to maximize the life and speed of the guide. All UtiliTrak ® carriages come complete with lubricators, consisting of an oil saturated felt pad within a housing. Lubricators should be periodically checked and re-oiled to ensure that a sufficient coating of lubricant is maintained on the channel guideway surfaces.*

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:

$$L_F = \frac{F_R}{F_{R\,(MAX)}} + \frac{F_A}{F_{A\,(MAX)}} + \frac{M_R}{M_{R\,(MAX)}} + \frac{M_Y}{M_{Y\,(MAX)}} + \frac{M_P}{M_{P\,(MAX)}} \leq 1$$

The applied force on the system is equivalent to:

$$F = F_{R(MAX)} * L_F$$

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

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

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
No shock or vibration, clean working environment, speed <1m/s	1.46
Light shocks or vibration, speed between 1m/s and 2m/s	1.85
Shocks, vibrations, harsh environment, speed > 2m/s	3