

Guideway Systems

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Machine Tool Industry Requirements

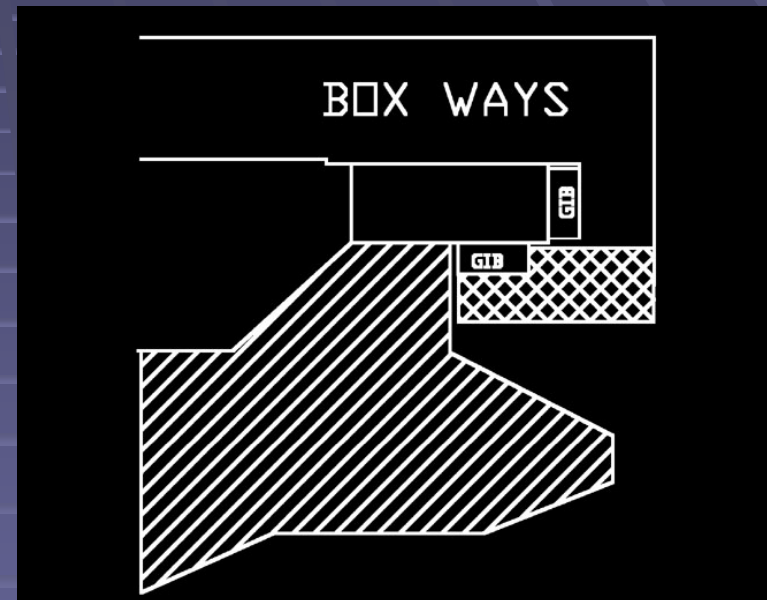
- High static stiffness
- High dynamic stiffness
- Low friction
- High accuracy and fatigue life
- High rapid traverse speeds

History of Guideways

- Box ways - hardened and ground
- Box ways - polymer lined
- Ball linear guideways
- Roller linear guideways
- Hybrid - combination of linear with external dampers

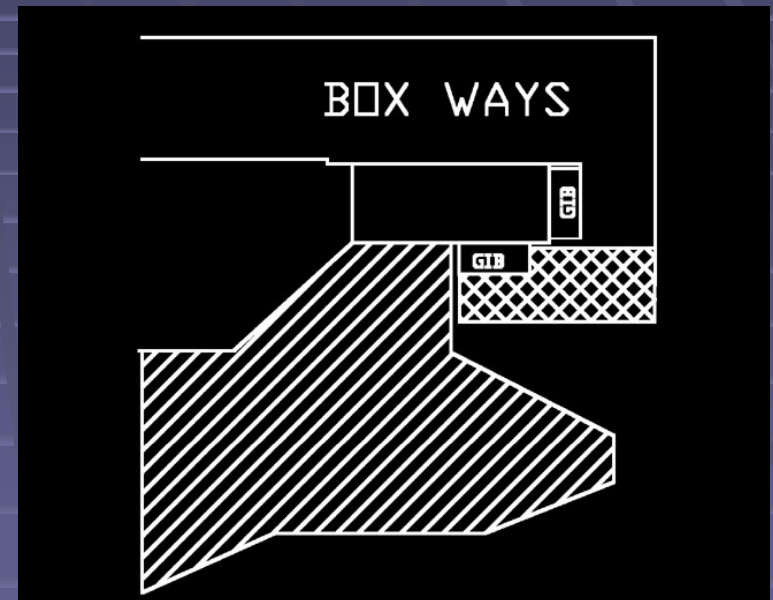
Box Ways - Hardened and Ground

- Good vibration damping
- Clearance required for sideway movement
- High friction and slip-stick
- Limited feedrates
- High maintenance with gib adjustments (wear)
- Oil lubrication is required



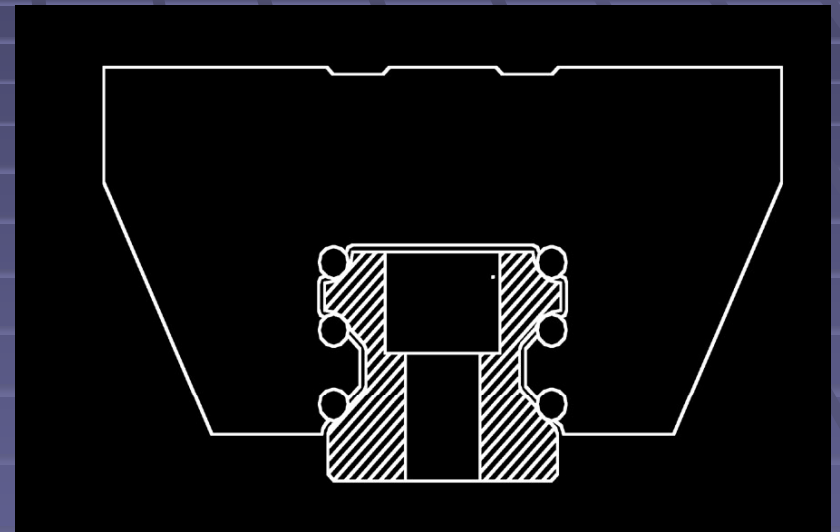
Box Ways - Polymer Lined

- Better vibration damping
- Friction slightly reduced
- Increase in wear
- Limited feedrates
- High maintenance with gip adjustments (wear)
- Oil lubrication is required



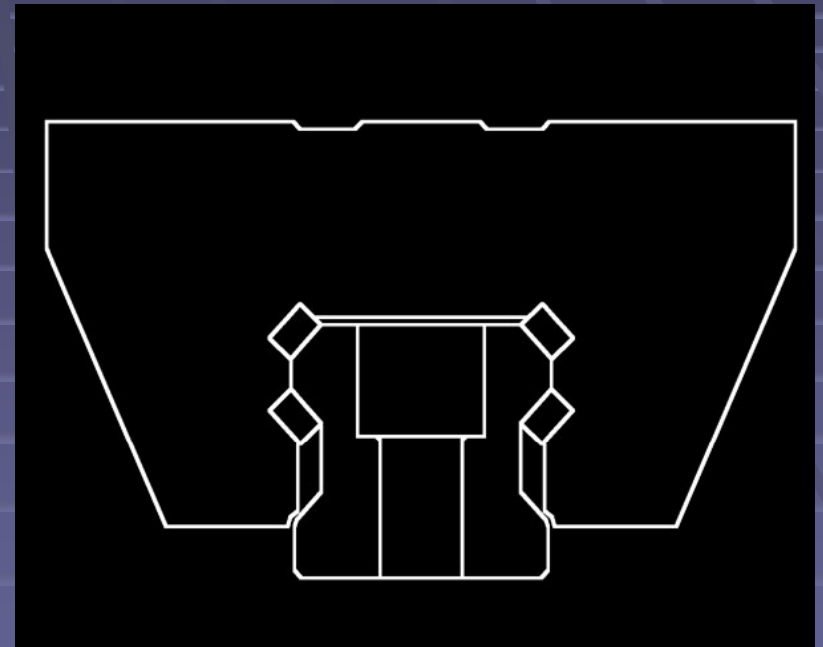
Ball Linear Guides

- High feedrate capability
- Low friction
- Contamination protection options
- Poor fatigue life under "short stroke" applications



Roller Linear Guides

- Better vibration damping
- High feedrate capability
- Low friction
- Contamination protection Options
- Poor fatigue life under "short" stroke applications.



Hybrid - Rolling Element With External Dampers

- The damping is not provided at the corners where motion is greatest and where damping will have the most effect.
- Expensive use of dual systems with limited effectiveness.

