Linear Motion Technology from the Bishop-Wisecarver Corporation

The UtiliTrak™ linear guide features BWC’s signature DualVee Motion Technology™ (DMT), a durable yet low cost linear guidance solution. DMT is an off-the-shelf “guide wheel-based” technology, proven to be highly reliable in the most challenging operating environments. With new and improved carriage and track designs, the UtiliTrak linear guide covers a broad spectrum of performance characteristics, accommodating an even wider range of application requirements. The design of the UtiliTrak linear guide offers easy installation and minimal maintenance — a linear guide with the lowest installed cost in its class.

- Antifriction operation
- Low noise
- Low installed cost/easy installation
- Smooth running
- High speed capacity
- Unlimited travel lengths
- High load capacity
- Compact design
- Impervious to contamination
- Belt driven styles available

Basic Configurations

There are three standard configurations of UtiliTrak linear guides. Special configurations are possible and our applications engineering team is available to discuss such requirements. A brief description of the standard units are as follows:

1. **SW Series** (page 6)
   - Carriage constructed with hardened steel DualVee® guide wheels
   - Track assembly comprised of aluminum U-channel substrate and hardened steel raceways
   - Available in DualVee® sizes 1, 2, and 3

2. **PW Series** (page 8)
   - Carriage constructed with polymer guide wheels
   - Track consists of anodized aluminum U-channel
   - Available in DualVee® sizes 1 and 2

3. **DS Series** (page 10)
   - Carriage constructed with hardened steel DualVee® guide wheels and a feature for belt attachment
   - Track assembly consists of two hardened steel raceways mounted to a tubular aluminum support beam with integral drive ends
   - Belt driven system is supplied complete and ready for installation
   - Available in DualVee® sizes 1 and 2

Figure 1  Standard configurations of UtiliTrak linear guides, from left to right: DS Series, PW Series, SW Series
The UtiliTrak Linear Guide (SW Series)

Carriage assembly
consisting of three
studded guide wheels

Hardened steel raceway
standard materials include
1045 carbon steel or 420
stainless steel

Track assembly
consisting of hardened steel
raceways mounted to an aluminum
U-channel substrate

Lubricator assembly
consisting of an oil saturated
felt contained within a
stamped metal housing

Studded DualVee guide wheel
affixed to the carriage assembly; wheels can
be 52100 carbon steel or 440C stainless steel,
sealed, shielded, clean room grade, or high
temperature compatible
The UtiliTrak™ linear guide is designed for applications where low cost and easy installation are the primary design objectives. Constructed with DualVee Motion Technology (DMT), the UtiliTrak linear guide combines high reliability with smooth, antifriction operation, all within a sleek, compact design. Simply put, the UtiliTrak linear guide offers a low cost alternative to square rail recirculating element technologies, which are difficult to install and often more accurate than necessary.

With an expanded product range, including DualVee guide wheels riding on hardened steel raceways, and polymer guide wheels riding on aluminum track, the UtiliTrak linear guide is ideal for a wide range of automation projects and general equipment design. A fully integrated belt drive version is also available, eliminating the design and assembly effort associated with integrating linear guides with actuation. The belt driven UtiliTrak requires only bolting it down, and mounting a motor, and the device is up and running.

The UtiliTrak design is intended for use in applications where load capacity, stiffness, and positional accuracy are less demanding than “machine tool grade” applications, where high performance square rail guides are typically employed. Square rail guides are typically expensive and often difficult to install, as mounting surface preparation adds significantly to the total installed cost. The compliant nature of the UtiliTrak design significantly reduces the installation effort. Designed primarily for transport type applications, the UtiliTrak is ideal for applications requiring low cost, easy installation, and simple maintenance.

**What’s Inside**

Linear guidance in the UtiliTrak design is achieved via a three-wheel carriage assembly rolling along, and captured within, a U-channel guide rail. The carriage assembly is constructed with three studded guide wheels mounted in-line. The two outside guide wheels are mounted with concentric studs, while the center guide wheel is mounted on an eccentric stud. Rotation of the eccentrically mounted guide wheel enables fit up adjustment between the carriage and rail, allowing for free play, stiffness, and drag to be adjusted as required.

- **Figure 2** UtiliTrak carriage assemblies with three wheel construction

- **Figure 3** UtiliTrak assemblies including SW Series (steel guide wheels with steel raceways) and PW Series (polymer guide wheels with aluminum raceways)

Fit up is pre-set at the factory, but is easily field adjusted to achieve the desired performance characteristics from the guide. Each carriage assembly includes a standard lubricator, which distributes a light coat of oil along the length of the track during normal operation. Lubrication of the track increases both the load and the speed capacity of the UtiliTrak linear guide.
# Features and Benefits

<table>
<thead>
<tr>
<th>Component/Aspect</th>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW Series</td>
<td>Constructed with hardened 52100 or 440C stainless steel bearing elements</td>
<td>Good load carrying capacity, high reliability, good corrosion resistance, wide selection of guide wheels including sealed, clean room compatible, and high temperature; compliant bearing design ensures easy installation and smooth, antifriction operation</td>
</tr>
<tr>
<td></td>
<td>Ground, sealed, and internally lubricated guide wheels</td>
<td>Excellent resistance to contamination; minimal maintenance</td>
</tr>
<tr>
<td></td>
<td>Adjustable wheel-to-track fit up</td>
<td>Easy modification of running characteristics such as drag, breakaway force, and running friction</td>
</tr>
<tr>
<td></td>
<td>Ground, double row, angular contact bearing arrangement which supports load in all orientations</td>
<td>Good load carrying capacity; high speed capacity</td>
</tr>
<tr>
<td></td>
<td>Inherent surface velocity gradient along the rolling contact area sweeps aside debris</td>
<td>Excellent resistance to contamination; minimal maintenance</td>
</tr>
<tr>
<td></td>
<td>Hardened steel or stainless steel raceways</td>
<td>High load capacity; good rigidity</td>
</tr>
<tr>
<td></td>
<td>Easily butt-jointed</td>
<td>Virtually unlimited travel lengths with low cost installation</td>
</tr>
<tr>
<td>PW Series</td>
<td>Guide wheels constructed with polymer outer race and double row antifriction bearing support</td>
<td>Low noise, high speed, lightweight compliant bearing design ensures easy installation and smooth, antifriction operation</td>
</tr>
<tr>
<td></td>
<td>Guide wheels supported by dual 440C stainless steel radial bearing arrangement</td>
<td>Good load carrying capacity, excellent corrosion resistance</td>
</tr>
<tr>
<td></td>
<td>Raceway consists of hard anodized 6005-T5 high grade aluminum</td>
<td>Lightweight, low cost, excellent control of extruded geometry; corrosion resistant, wear resistant bearing surfaces</td>
</tr>
<tr>
<td></td>
<td>Easily butt-jointed</td>
<td>Virtually unlimited travel lengths with low cost installation</td>
</tr>
<tr>
<td>DS Series</td>
<td>Hardened steel raceways mounted to tubular aluminum support structure with integral drive ends</td>
<td>Complete belt actuated system providing easy, low cost installation</td>
</tr>
</tbody>
</table>
**SW Series UtiliTrak Linear Guide Carriage Assembly**

**Hardened Steel DualVee Guide Wheels**

- Matched assembly for composite SW Series UtiliTrak rail
- High load capacity
- Easy installation
- Medium to heavy duty transport type applications

**Carriage Dimensions**

<table>
<thead>
<tr>
<th>UtiliTrak Size</th>
<th>Part Number</th>
<th>Wheel Plate Assembly Length</th>
<th>Wheel Plate Assembly Height</th>
<th>Wheel Plate Height</th>
<th>Wheel Plate Assembly Width</th>
<th>Wheel Plate Hole Spacing</th>
<th>Wheel Plate Fastener Size</th>
<th>Wheel Plate Fastener Maximum Depth</th>
<th>Wheel Plate Counterbore Diameter</th>
<th>Wheel Plate Counterbore Depth</th>
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<tbody>
<tr>
<td>1</td>
<td>UTCCA1</td>
<td>100.0</td>
<td>19.5</td>
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<td>40.0</td>
<td>M6 x 1.0</td>
<td>10.1</td>
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<td>2</td>
<td>UTCCA2</td>
<td>125.0</td>
<td>26.5</td>
<td>13.0</td>
<td>20.8</td>
<td>55.0</td>
<td>45.0</td>
<td>M8 x 1.25</td>
<td>13.7</td>
<td>25.0</td>
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<td>3</td>
<td>UTCCA3</td>
<td>170.0</td>
<td>37.3</td>
<td>17.0</td>
<td>29.4</td>
<td>80.0</td>
<td>60.0</td>
<td>M10 x 1.5</td>
<td>19.6</td>
<td>38.0</td>
</tr>
</tbody>
</table>

**Notes:**
- All dimensions are in mm.
- Stainless steel, clean room, or high temperature guide wheel options are available — contact BWC for a quotation.
- Direction of arrow on carriage plate indicates how the load should be oriented to achieve radial loading on the two concentric guide wheels.
- For stainless steel guide wheels, add "-SS" to the end of the part number.
- For clean room/high temperature compatible guide wheels, add "-227" to the end of the part number.
- For sealed 52100 carbon steel guide wheels, add "-X" to the end of the part number.
- Load capacities are in N; Moment capacities are in Nm.

**Load Capacity — Based on 100km Service Life**

<table>
<thead>
<tr>
<th></th>
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<td>1111</td>
<td>14</td>
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<td>1749</td>
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<td>146</td>
<td>176</td>
<td>35</td>
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</table>
**SW Series UtiliTrak Linear Guide Rail Assembly**

Composite Track Assembly with Hardened Steel Raceways

- Induction hardened steel DualVee® track mounted on lightweight aluminum U-Channel substrate (stainless steel DualVee® track is optional)
- Matched component for the SW Series UtiliTrak carriage assembly
- Several standard lengths to choose from

### Composite Track Assembly Dimensions

<table>
<thead>
<tr>
<th>UtiliTrak Size</th>
<th>Part Number</th>
<th>Width</th>
<th>Height</th>
<th>Vee Height</th>
<th>End Mount Hole Spacing</th>
<th>Mount Hole Spacing</th>
<th>Mount Hole Diameter</th>
<th>Recommended Fastener</th>
<th>Base Thickness</th>
<th>Counter Bore Geometry</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UTCTPA1-LLLL</td>
<td>40.0</td>
<td>17.6</td>
<td>12.8</td>
<td>45.0</td>
<td>100.0</td>
<td>6.9</td>
<td>PAN HEAD M6</td>
<td>5.9</td>
<td>Ø 20.7 x 2.0 DP</td>
</tr>
<tr>
<td>2</td>
<td>UTCTPA2-LLLL</td>
<td>60.0</td>
<td>21.5</td>
<td>15.2</td>
<td>45.0</td>
<td>150.0</td>
<td>8.8</td>
<td>PAN HEAD M8</td>
<td>7.3</td>
<td>Ø 27.0 x 3.0 DP</td>
</tr>
<tr>
<td>3</td>
<td>UTCTPA3-LLLL</td>
<td>85.0</td>
<td>29.5</td>
<td>20.6</td>
<td>82.5</td>
<td>250.0</td>
<td>10.5</td>
<td>PAN HEAD M10</td>
<td>9.0</td>
<td>Ø 28.6 x 5.0 DP</td>
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</table>

### Composite Track — Standard Lengths (dimension “L” in mm)

<table>
<thead>
<tr>
<th>Size</th>
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<th>290</th>
<th>390</th>
<th>490</th>
<th>590</th>
<th>690</th>
<th>790</th>
<th>890</th>
<th>990</th>
<th>1090</th>
<th>1990</th>
<th>2990</th>
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</tr>
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<td>Size 2</td>
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<td>540</td>
<td>690</td>
<td>840</td>
<td>990</td>
<td>1140</td>
<td>1290</td>
<td>1440</td>
<td>1590</td>
<td>2190</td>
<td>2790</td>
<td>3390</td>
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<td>Size 3</td>
<td>415</td>
<td>665</td>
<td>915</td>
<td>1165</td>
<td>1415</td>
<td>1665</td>
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<td>2165</td>
<td>2415</td>
<td>2665</td>
<td>2915</td>
<td>3165</td>
<td>3415</td>
</tr>
</tbody>
</table>

**Notes:**
- All dimensions are in mm.
- Contact BWC for quotation on non-standard rail lengths.
- “-LLLL” equals rail length in mm at the end of the UT rail part number.
- For stainless steel track option add “-SS” to end of part number.
- Rail length tolerance is ± 2 mm.
PW Series UtiliTrak Linear Guide Carriage Assembly

Acetal Polymer Guide Wheels

- Matched assembly for PW Series aluminum UtiliTrak rail
- High speed operation
- Compact envelope
- Easy installation
- Smooth, antifriction linear guidance
- Extremely low noise
- Economical design
- Light to medium duty transport applications

Carriage Dimensions

<table>
<thead>
<tr>
<th>UtiliTrak Size</th>
<th>Part Number</th>
<th>Wheel Plate Assembly Length</th>
<th>Wheel Plate Assembly Height</th>
<th>Wheel Plate Height</th>
<th>Wheel Plate Assembly Width</th>
<th>Wheel Plate Hole Spacing</th>
<th>Wheel Plate Fastener Size</th>
<th>Wheel Plate Fastener Maximum Depth</th>
<th>Wheel Plate Counterbore Diameter</th>
<th>Wheel Plate Counterbore Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UTCAN1</td>
<td>100.0</td>
<td>19.5</td>
<td>9.0</td>
<td>15.2</td>
<td>28.0</td>
<td>40.0</td>
<td>M6 x 1.0</td>
<td>10.1</td>
<td>19.0</td>
</tr>
<tr>
<td>2</td>
<td>UTCAN2</td>
<td>125.0</td>
<td>26.5</td>
<td>13.0</td>
<td>20.8</td>
<td>42.0</td>
<td>45.0</td>
<td>M8 x 1.25</td>
<td>13.7</td>
<td>25.0</td>
</tr>
</tbody>
</table>

Notes:
- All dimensions are in mm.
- Acetal polymer guide wheels are supported by twin 440C stainless steel ball bearing arrangement.
- Direction of arrow on carriage plate indicates how the load should be oriented to achieve radial loading on the two concentric guide wheels.
- Load capacities are in N; Moment capacities are in Nm.

Load Capacity —Based on 100km Service Life

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
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<td></td>
<td>L_A</td>
<td>L_R</td>
<td>M_P</td>
<td>M_Y</td>
<td>M_R</td>
</tr>
<tr>
<td>1</td>
<td>177</td>
<td>89</td>
<td>10</td>
<td>3</td>
<td>2</td>
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<tr>
<td>2</td>
<td>222</td>
<td>177</td>
<td>18</td>
<td>8</td>
<td>4</td>
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</tbody>
</table>
**PW Series UtiliTrak Linear Guide Rail Assembly**

**Aluminum U-Channel Track**

- Matched component for PW Series UtiliTrak carriage assembly (with polymer guide wheels)
- Easy installation
- Available in several standard lengths
- Low cost
- Light weight
- Compact envelope

**Track Dimensions**

<table>
<thead>
<tr>
<th>UtiliTrak Size</th>
<th>Part Number</th>
<th>Width</th>
<th>Height</th>
<th>End Hole Spacing</th>
<th>Hole Spacing</th>
<th>Hole Diameter</th>
<th>Recommended Fastener</th>
<th>Track Vee Height</th>
<th>Base Thickness</th>
<th>Counter Bore Geometry</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UT1-LLLL</td>
<td>30.0</td>
<td>18.0</td>
<td>30.0</td>
<td>60.0</td>
<td>5.5</td>
<td>PAN HEAD M5</td>
<td>12.8</td>
<td>6.0</td>
<td>Ø 12.0 x 2.0 DP</td>
</tr>
<tr>
<td>2</td>
<td>UT2-LLLLL</td>
<td>45.0</td>
<td>22.0</td>
<td>50.0</td>
<td>100.0</td>
<td>8.8</td>
<td>PAN HEAD M8</td>
<td>15.2</td>
<td>7.0</td>
<td>Ø 20.0 x 3.0 DP</td>
</tr>
</tbody>
</table>

**Notes:**
- All dimensions are in mm.
- Contact BWC for quotation on non-standard rail lengths.
- “-LLLL” equals rail length in mm at the end of the UT rail part number.
- Rail length tolerance is ± 2 mm.

**PW Series Aluminum U-channel Track — Standard Lengths (dimension “L” in mm)**

<table>
<thead>
<tr>
<th>Size 1</th>
<th>120</th>
<th>240</th>
<th>360</th>
<th>540</th>
<th>720</th>
<th>960</th>
<th>1200</th>
<th>1440</th>
<th>1800</th>
<th>2220</th>
<th>2640</th>
<th>3000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size 2</td>
<td>200</td>
<td>300</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>1200</td>
<td>1600</td>
<td>2000</td>
<td>2400</td>
<td>2700</td>
<td>3000</td>
</tr>
</tbody>
</table>
**DS Series UtiliTrak Driven System**

Hardened Steel DualVee Guide Wheels/Driven Carriage Arrangement

- Complete belt driven actuated system
- High speed capacity
- Units can be mounted in a gantry configuration without mounting bracketry
- Smooth, antifriction linear motion
- High load capacity

**Driven System Dimensions**

<table>
<thead>
<tr>
<th>UtiliTrak Size</th>
<th>Part Number</th>
<th>Shaft Size</th>
<th>Shaft Height</th>
<th>Shaft Width</th>
<th>End Shaft Length</th>
<th>End Length</th>
<th>Motor Mount Thread</th>
<th>Motor Mount Bolt Circle</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>UTDTA1-LLLL</td>
<td>10.0</td>
<td>28.8</td>
<td>84.0</td>
<td>50.8</td>
<td>70.0</td>
<td>M4 x .7</td>
<td>42.5</td>
</tr>
<tr>
<td></td>
<td>UTDTA2-LLLL</td>
<td>12.0</td>
<td>48.5</td>
<td>129.2</td>
<td>50.8</td>
<td>85.0</td>
<td>M5 x .8</td>
<td>50.9</td>
</tr>
</tbody>
</table>

**Mounting Hole Layout and Outline Geometry**

<table>
<thead>
<tr>
<th>UtiliTrak Size</th>
<th>Part Number</th>
<th>Mounting Hole Spacing</th>
<th>Mounting Hole Edge Spacing</th>
<th>Mounting Hole End Spacing</th>
<th>Mounting Hole Diameter</th>
<th>Overall Height</th>
<th>Aluminum Support Tube Height</th>
<th>Aluminum Support Tube Width</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>UTDTA1-LLLL</td>
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<td>12.9</td>
<td>12.0</td>
<td>6.4</td>
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<td>12.5</td>
<td>8.3</td>
<td>91.4</td>
<td>76</td>
<td>76</td>
</tr>
</tbody>
</table>

**Standard Slide Lengths and Other Design Parameters**

<table>
<thead>
<tr>
<th>UtiliTrak Size</th>
<th>Part Number</th>
<th>Overall Length</th>
<th>Travel Length</th>
<th>Shaft Spacing</th>
<th>Pulley Pitch Diameter</th>
<th>Thrust Capacity</th>
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<td>898.4</td>
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**Notes:**
- All dimensions are in mm.
- Standard guide wheels constructed with 52100 hardened steel.
- Contact BWC for non-standard length or other special requirements.
- Stainless steel, clean room, or high temperature guide wheel options are available — contact BWC for a quotation.
- Load capacities are in N; Moment capacities are in Nm.
DS Series UtiliTrak Driven System

Hardened Steel DualVee Guide Wheels/Driven Carriage Arrangement

- Included with DS Series belt driven system
- High load capacity
- High speed capacity
- Configured for easy belt attachment
- Carriage can be purchased as a standalone assembly for use with composite track assembly (Series SW)
- Smooth, antifriction linear guidance

Driven Carriage Assembly Dimensions

<table>
<thead>
<tr>
<th>Utili-Trak Size</th>
<th>Part Number</th>
<th>Wheel Plate Assembly Length</th>
<th>Wheel Plate Height</th>
<th>Wheel Plate Assembly Width</th>
<th>Wheel Plate Hole Spacing Length</th>
<th>Wheel Plate Hole Spacing Width</th>
<th>Wheel Plate Fastener Size</th>
<th>Wheel Plate Fastener Maximum Counterbore Depth</th>
<th>Wheel Plate Counterbore Diameter</th>
<th>Wheel Plate Counterbore Depth</th>
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</thead>
<tbody>
<tr>
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<td>19.5</td>
<td>9.0</td>
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Load Capacity — Based on 100km Service Life

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Fit Up Adjustment

1. Fit up on a UtiliTrak guideway should be set while the carriage is engaged with the rail.

2. Looking down on the top of the carriage (see Figure 4), the wheel-stud assembly (with hex socket) is locked into place with a hex nut. Both are accessible from the top face of the carriage. The center wheel-stud assembly is used to adjust fit up.

3. Loosen the center wheel-stud assembly by turning the hex nut counter-clockwise with an offset box end wrench.

4. When it is loose enough, the wheel stud assembly can be rotated using the appropriate size hex key. Rotating the center wheel's stud will adjust the wheel location into or out of mesh with the guide rail. Rotate the stud clockwise to tighten fit up.

5. Make a small adjustment to the fit up and re-tighten the stud by turning the hex nut clockwise. If the fit up is too loose, the carriage will exhibit excessive play (i.e. it will rock). If the fit up is too tight, the carriage will exhibit excessive drag. Move the carriage up and down the entire rail length and make sure that it does not feel too loose at any given location along the guide rail. It may take a couple of attempts to find the proper fit up. It is important for the fit up to be correctly adjusted before use.

Mounting Orientation

Although the UtiliTrak linear guide can be employed to accept loads in all orientations, it is primarily intended to support loads in the radial plane ($L_R$). As such, it is good engineering practice to orient the slide such that the two outside wheels support the load radially. Each carriage assembly includes an arrow pointing towards the optimal direction for the load to be oriented. Loads oriented in this direction will produce a radial load on each of the concentrically mounted guide wheels.

Figure 4 Adjustment of fit up in a UtiliTrak linear guide

Figure 5 Diagrams of UtiliTrak configurations showing force and moment load vectors
Load Capacity
The load capacities for UtiliTrak linear guides are tabulated in the carriage assembly specification pages. These ratings are based on 100km (4 million inches) of service life. As with any other linear bearing technology, UtiliTrak sizing should be done conservatively. If the guide selection is such that load capacities are marginal, it may be appropriate to consider the next largest size. Custom-engineered carriage configurations are possible, including the addition of extra wheels, the use of varying combinations of eccentric and fixed-position wheels, and the use of multiple carriages. Our sales engineering team is available to assist with the evaluation of any application specific loading parameters.

Accuracy
The precision of a UtiliTrak linear guide is defined differently than typical square rail recirculating ball guides. Square rail guides are designed primarily for “high end” positioning applications, such as machine tool guideways, Cartesian coordinate robotics, and precision XY inspection equipment. As such, these guides are more rigidly defined in terms of the running parallelism of carriage to rail, and are measured as a function of rail length. The high cost of positioning-type guides can be attributed to the expense of the grinding and finishing operations necessary to achieve these tight tolerances.

The UtiliTrak guide, on the other hand, has been developed for “lower end” transport applications. The definition of accuracy in this class of guide is independent of rail length, and is measured solely by the parallelism maintained between the critical rail surfaces. The accuracy of a UtiliTrak guide is not cumulative with rail length as with positioning-type guides. In the UtiliTrak guide, parallelism between critical rail geometries does not vary by more than 0.05 mm (0.002”) over the entire length of the rail. As with any linear guide product, the installed accuracy of the UtiliTrak guide is directly related to the level of straightness and flatness of the surface to which it is mounted. As such, it is important for the mounting surface to be more rigid than the UtiliTrak rail, as the guide will conform to the surface to which it is mounted.

Bishop-Wisecarver Corporation — An Overview
Bishop-Wisecarver is a family owned manufacturing company specializing in guide wheels and guided motion technologies. DualVee® was designed as a problem solver for automotive, machine tool, paper processing, textile, and general industrial automation applications where traditional guidance technologies were ineffective. DualVee Motion Technology (DMT) has continued to evolve into the ideal technology for today’s cutting edge industries such as medical, packaging, aerospace, electronic, and semiconductor.

Bishop-Wisecarver invented the DualVee® guide wheel and has been a world leader in guide wheel technology since 1970. DMT integrates three main components, the DualVee guide wheel, its DualVee® mating track with patented mounting shoulder, and the DualVee® support bushing. Our product line includes components, linear guides, linear systems, rotary guides and systems, and aluminum machine framing. Stainless steel, high temperature, and clean room compatible products are among BWC’s more recent product introductions. Bishop-Wisecarver’s more popular product offerings include the following trade names: DualVee®, LoPro®, UtiliTrak, and GV3. New product development continues to be an ongoing process at Bishop-Wisecarver, with innovative designs being introduced at regular intervals.
**Product Categories and Uses**

DualVee products are available in various configurations, and are primarily characterized by their level of integration. The three major DualVee categories include components, linear guides, and actuated linear systems.

**Components**

*Covered in our Components and Linear Guides catalog*

- DualVee® componentry offers the ultimate in design flexibility for “ground up” linear motion design projects
- Choose from a variety of guide wheel, track, and mounting hardware configurations
- Accessories include wheel covers and lubricators
- Material options include stainless steel and carbon steel
- DualVee® track is available with optional black oxide finish, thin dense chrome plating, or electroless nickel plating (other platings and treatments are available – consult applications engineering)
- New materials and configurations are constantly under development (consult applications engineering)

**Linear Guides**

UtiliTrak™ linear guides are covered in this catalog; all other linear guides are covered in our Components and Linear Guides catalog

- Standalone linear guides consist of prematched carriage and track assemblies
- Eliminates the design work associated with component integration
- Linear guides are easy to specify and even easier to install
- Bill of material control is simplified and the number of purchased items is consolidated
- Carriages come complete with adjustable wheel to track fit up and options such as wheel covers or lubricators
- Standard prematched linear guides include either a 4-wheeled or a 3-wheeled carriage assembly, both using DualVee® componentry
- Mating track assemblies are available in standard lengths with various options

**Actuated Linear Systems**

*Driven UtiliTrak system is covered in this catalog; all other linear systems are covered in our Actuated Linear Systems catalog*

- Actuated linear systems are the integration of a linear guide with a linear actuator
- Minimizes the integration design effort with minimal lead time (typical lead time: 2 weeks or less)
- Further reduces the number of elements within a machine design’s bill of materials
- The LoPro® actuated linear system is the BWC standard; LoPro® integrates a 4-wheeled DualVee carriage and a prematched track assembly with one of several standard actuator options
- Standard LoPro® actuators include belt, chain, ball screw, lead screw, and pneumatic cylinder
- New actuated linear systems are currently under development
- Custom engineered actuated linear systems are also possible (consult applications engineering)
# Application Data Sheet

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Motion without limits.™

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Pittsburg, CA 94565  
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Fax: 925-439-5931  
E-mail: info@bwc.com  
Internet: http://www.bwc.com

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**Product/Machine Description**

**Additional Requirements**

**Expected Volume**  
**Date Needed**

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**System Sketch**
BWC™ Solutions

DualVee® Components and Linear Guides — built with DualVee Motion Technology™

GV3 Linear Guidance and Transmission System

SL2 Stainless Steel Based Slide System

HDS Heavy Duty Slide System

UtiliTrak™ Linear Motion Guide — built with DualVee Motion Technology™

LoPro® Linear Motion System — built with DualVee Motion Technology™

DLS Driven Linear System

HDLS Heavy Duty Driven Linear System

RTS Ring and Track System/DTS Driven Track System

MCS Aluminum Frame and Machine Construction System

Bishop-Wisecarver Corporation warrants, to the original purchaser only, that the products (a) conform to the specifications published in this catalog or as otherwise communicated to the purchaser, and (b) are free from defects in material or workmanship. This warranty expires one year from the date of delivery. Any failure of the products to conform to the foregoing warranty must be communicated to Bishop-Wisecarver Corporation in writing within 13 months after delivery. Bishop-Wisecarver Corporation shall have the option, in its discretion, of correcting any failure or defect, providing replacement products, or providing a full refund of the purchase price. These remedies are the purchaser’s exclusive remedies for breach of warranty. Any repair of defective products, including parts and labor, will be performed at Bishop-Wisecarver’s expense and at its facilities. All freight must be prepaid by the customer.

The limited warranty and limited remedy set forth above constitute the only warranty of Bishop-Wisecarver Corporation and the purchasers only remedies in the event such warranty is breached. The foregoing limited warranty is exclusive of all other warranties pertaining to the products, written or oral, express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose, or against patent infringement.

Bishop-Wisecarver Corporation does not warrant (a) defects caused by failure to provide a suitable installation environment for the product, (b) damage caused by use of the product for purposes other than those for which it was designed, (c) damage caused by unauthorized attachments or modifications, (d) products which have been repaired or altered outside of our facility, or (e) any other abuse or misuse by the purchaser. In no event will Bishop-Wisecarver be liable for any special, incidental or consequential damages, including but not limited to claims for injury to or death of persons, or for damage to property, based on breach of warranty, breach of contract, negligence, strict tort or any other legal theory, including loss of profits or revenues, loss of use of the product, cost of any substitute equipment or facilities, and the claims of customers or other third parties. Any action for breach of warranty must be commenced within 15 months following delivery of the product.

The purchaser acknowledges that it is selecting the product and/or system choices for its particular application, and is relying on its own expertise and not the expertise of Bishop-Wisecarver Corporation in making such selections.

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