T-Series Profile Rail

Industry standard dimensions

Low cost installation – no need for high precision base mounts

Approximately 5 times more forgiving than all steel profile rail guides

Forgiving and flexible proprietary U Channel design accommodates misalignment from machine bases or installation errors

N class radial run out accuracy

Balls are not retained in carriage

Low drag seal option available

Contamination protection with lip seal

Speeds up to 3 m/s

Acceleration up to 50 m/s²

Multiple carriage design

Four-runner block attachment bolts

Aluminum rail with hardened steel ball path insert

Corrosion resistance with Armoloy® Thin Dense Chrome plating optional

Lubrication inlets on both ends of carriage

Lightweight design and construction

Sold as assemblies only

One piece rail length up to 3 meters

One piece rail length up to 3 meters

AT Series

<table>
<thead>
<tr>
<th>Product Type</th>
<th>AT</th>
<th>25</th>
<th>A</th>
<th>LXXXX</th>
<th>LDS</th>
<th>Y=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carriage Style</td>
<td>A</td>
<td>Dimensionally Interchangeable with THK HSR A, B, CA &amp; CB</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>E</td>
<td>Dimensionally Interchangeable with THK HSR R &amp; TR</td>
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<td></td>
<td></td>
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<tr>
<td>F</td>
<td>Dimensionally Interchangeable with THK SR W</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Dimensionally Interchangeable with THK SR TB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Extended Standards

| A | Armoloy |
| LDS | Low Drag Seal |
| S... | Special Option – sequential numbers |

Y Dimension
The distance (from the rail end to the first hole) will be equal unless specified

Note: 1. Sold as assemblies only
2. Carriages are dimensionally matched to rails during assembly
Features
The Thomson T-Series Ball Profile Rail is lightweight, highly flexible and forgiving — an ideal choice for poor misalignment. It has a low cost of installation and industry standard dimensions for easy replacement. It is a lightweight and forgiving alternative to all-steel profile rail.

Materials
The Thomson T-Series Ball Profile Rail carriage and rail is produced from high quality aircraft aluminum alloy. The carriage has hardened steel load bearing plates. The rail has a custom ball path insert made of hardened steel. Stringent quality controls are in place to ensure consistency of steel from the source, allowing us to ensure that we deliver the highest quality product.

Lightweight
The aluminum carriage and rail dramatically reduces the total weight of the assembly making Thomson T-Series an ideal choice for applications requiring reduced weight inertia such as airplanes, ships, automobiles, etc.

Accuracy
As a result of its high flexibility to misalignment errors, the T-Series Ball Profile Rail is available in an N class radial run out only.

Forgiving to Misalignment
The Thomson T-Series proprietary “U” channel construction allows the rail to “flex” to accommodate poor machine bases or misalignment errors.

Low Cost
The Thomson T-Series can be mounted direct to non-machined bases without sacrificing total operational efficiency or the need for special tools or gauges to ensure proper rail and base straightness. By eliminating the costly machined base and special tools the installation time or machine build time can be cut in half, saving valuable time and money.

Drop-in Replacement
The Thomson T-Series is designed to industry standard dimensions and rail hole patterns. This means it can be used as a drop-in replacement for any conventional all steel profile linear guide in the market today.
T-Series Carriage Styles

Standard Carriage Style A
Sizes 20, 25, 35
Dimensionally interchangeable to THK HSR A, B, CA, CB and Thomson 511 A

Standard Short Hole Spacing Style G
Sizes 20, 25, 35
Dimensionally interchangeable to THK SR TB

Narrow Carriage Style E
Sizes 20, 25, 35
Dimensionally interchangeable to THK HSR R and TR and Thomson 511 E

Narrow High Style F
Sizes 20, 25, 35
Dimensionally interchangeable to THK SR W
T-Series Profile Rail

T-Series Style A and G

T-Series Profile Rail Standard High "A" Style

| Size | A  | A1 | A2 | A3 | H  | H1 | H2 | B  | E1 | E2 | S1 | S2 | S3 | S5 | S6 | N1 | N5 | N6 | X  | L_max |
|------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------|
| 20   | 63 | 31.5 | 20 | 21.5 | 30 | 25 | 18 | 76 | 53 | 40 | M5 | M6 | M5 | 5.8 | 9.5 | 10 | 6.25 | 7.5 | 60 | 3000 |
| 25   | 70 | 35 | 23 | 23.5 | 36 | 29.5 | 22 | 88 | 57 | 45 | M6 | M8 | M6 | 7 | 10.7 | 12 | 8 | 10 | 60 | 3000 |
| 35   | 100 | 50 | 34 | 33 | 48 | 40 | 29 | 117 | 82 | 62 | M8 | M10 | M8 | 9 | 14 | 15.26 | 6.6 | 11 | 80 | 3000 |

All dimensions in mm unless shown otherwise.

T-Series Profile Rail Standard "G" Style

| Size | A  | A1 | A2 | A3 | H  | H1 | H2 | B  | E1 | E2 | S1 | S2 | S3 | S5 | S6 | N1 | N5 | N6 | X  | L_max |
|------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------|
| 20   | 59 | 29.5 | 20 | 19.5 | 28 | 23 | 18 | 76 | 49 | 32 | M5 | M6 | M5 | 5.8 | 9.5 | 8 | 4.25 | 7.5 | 60 | 3000 |
| 25   | 73 | 36.5 | 23 | 25 | 33 | 26.5 | 22 | 88 | 60 | 35 | M6 | M8 | M6 | 7 | 10.7 | 9 | 5 | 10 | 60 | 3000 |
| 35   | 100 | 50 | 34 | 33 | 48 | 40 | 29 | 117 | 82 | 50 | M8 | M10 | M8 | 9 | 14 | 15.26 | 6.6 | 11 | 80 | 3000 |

All dimensions in mm unless shown otherwise.
T-Series
Style A and G

Dynamic Load Rating
\[ C = \text{Dynamic load rating} \]

The dynamic load rating is based upon a 100 km travel life.

In order to compare with bearings rated for 50 km, divide the dynamic rating of the bearing rated for 50 km by 1.26.

Static Load Capacity
\[ C_0 = \text{Static load capacity} \]

The static load capacity is the maximum radial load that should be applied to the bearing while there is no relative motion between the carriage and rail.

![Dynamic Load Diagram](image)

<table>
<thead>
<tr>
<th>Size</th>
<th>Style</th>
<th>Load Ratings N (lbf)</th>
<th>Mass</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(C@100\text{km})</td>
<td>Carriage</td>
</tr>
<tr>
<td>20</td>
<td>A</td>
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<td>G</td>
<td>11000 (2475)</td>
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<tr>
<td>25</td>
<td>A</td>
<td>13000 (2925)</td>
<td>0.30</td>
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<tr>
<td></td>
<td>G</td>
<td>15000 (3375)</td>
<td></td>
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<tr>
<td>35</td>
<td>A</td>
<td>25000 (5620)</td>
<td>0.74</td>
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<td></td>
<td>G</td>
<td>28000 (6295)</td>
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<table>
<thead>
<tr>
<th>Load</th>
<th>Dynamic Load Rating</th>
<th>Load Limit</th>
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<tbody>
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<td>(F_c)</td>
<td>(C)</td>
<td>(C)</td>
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<td>(F_t)</td>
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<td>(0.6C)</td>
</tr>
<tr>
<td>(F_s)</td>
<td>(0.6C)</td>
<td>(0.6C)</td>
</tr>
</tbody>
</table>

Bearing Travel Life Calculation
\[ L = \frac{(C/F)^3}{100 \text{ km}} \]
where:
\(L\) = travel life, km
\(C\) = dynamic load rating, N
\(F\) = applied dynamic load, N

Operating Parameters
- Maximum Velocity = 3 m/s
- Maximum Acceleration = 50 m/s²
- Maximum Temperature = 80°C
T-Series Profile Rail

T-Series
Style E and F

S2 Thread x N3 Deep
Lubrication Access
Both Ends

S3 Screw Size
† - Will be equal on both ends, unless otherwise specified.

Supplied
Lubrication Fittings

M6 Tapered Thread

T-Series Profile Rail Narrow “E” Style

<table>
<thead>
<tr>
<th>Size</th>
<th>A</th>
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<th>A2</th>
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<th>A4</th>
<th>H</th>
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<th>N3</th>
<th>N5</th>
<th>N6</th>
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<td>76</td>
<td>32</td>
<td>36</td>
<td>M5</td>
<td>M5</td>
<td>5.8</td>
<td>9.5</td>
<td>6</td>
<td>6.25</td>
<td>7.5</td>
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<td>3000</td>
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<td>88</td>
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<td>35</td>
<td>M6</td>
<td>M6</td>
<td>7</td>
<td>10.7</td>
<td>8</td>
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<td>47</td>
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<td>50</td>
<td>50</td>
<td>M8</td>
<td>M8</td>
<td>9</td>
<td>14</td>
<td>12</td>
<td>13.6</td>
<td>11</td>
<td>80</td>
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</table>

All dimensions in mm unless shown otherwise

T-Series Profile Rail Narrow High “F” Style

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<tr>
<th>Size</th>
<th>A</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>H</th>
<th>H1</th>
<th>H2</th>
<th>B</th>
<th>E1</th>
<th>E2</th>
<th>S2</th>
<th>S3</th>
<th>S5</th>
<th>S6</th>
<th>N3</th>
<th>N5</th>
<th>N6</th>
<th>X</th>
<th>Lmax</th>
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<td>9.5</td>
<td>6</td>
<td>4.25</td>
<td>7.5</td>
<td>60</td>
<td>3000</td>
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<tr>
<td>25</td>
<td>48</td>
<td>24</td>
<td>23</td>
<td>12.5</td>
<td>51.0</td>
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<td>35</td>
<td>M6</td>
<td>M6</td>
<td>7</td>
<td>10.7</td>
<td>8</td>
<td>5</td>
<td>10</td>
<td>60</td>
<td>3000</td>
</tr>
<tr>
<td>35</td>
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<td>M8</td>
<td>M8</td>
<td>9</td>
<td>14</td>
<td>12</td>
<td>6.6</td>
<td>11</td>
<td>80</td>
<td>3000</td>
</tr>
</tbody>
</table>

All dimensions in mm unless shown otherwise
T-Series
Style E and F

Dynamic Load Rating
C = Dynamic load rating

The dynamic load rating is based upon a 100 km travel life. In order to compare with bearings rated for 50 km, divide the dynamic rating of the bearing rated for 50 km by 1.26.

Static Load Capacity
C_o = Static load capacity

The static load capacity is the maximum radial load that should be applied to the bearing while there is no relative motion between the carriage and rail.

<table>
<thead>
<tr>
<th>Size</th>
<th>Style</th>
<th>Load Ratings N (lbf)</th>
<th>Carriage kg</th>
<th>Rail kg/m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>C (@100km)</td>
<td>C_o</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>A</td>
<td>9000 (2025)</td>
<td>11000 (2475)</td>
<td>0.22   0.79</td>
</tr>
<tr>
<td>25</td>
<td>A</td>
<td>13000 (2925)</td>
<td>15000 (3375)</td>
<td>0.30   1.06</td>
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<tr>
<td>35</td>
<td>A</td>
<td>25000 (5620)</td>
<td>28000 (6295)</td>
<td>0.74   2.27</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Dynamic Load Rating</th>
<th>Load Limit</th>
</tr>
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<tbody>
<tr>
<td>F_c</td>
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</tr>
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<td>F_t</td>
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<tr>
<td>F_s</td>
<td>0.6C</td>
</tr>
</tbody>
</table>

Bearing Travel Life Calculation
L = (C/F)³ x 100 km
where:
L = travel life, km
C = dynamic load rating, N
F = applied dynamic load, N

Operating Parameters
Maximum Velocity = 3 m/s
Maximum Acceleration = 50 m/s²
Maximum Temperature = 80°C
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