Solid, Stable and Adjustable
Low Friction Linear Motion

SB-LGC
Linear Roller Block System

Dial-in Preload
Maintenance Free
Low friction
High Loads
High Speeds
Linear Beam Capable

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LM76 is a comprehensive designer, manufacturer of linear motion bearings, linear shafting and linear slides located in East Longmeadow, Massachusetts, USA. SAIBO is a world recognized leader in the design and manufacturer of low friction linear systems located in Wuxi, China.
The SB-LGC 4 roller carriage block and rail system offers a wide, stable linear motion platform that offers high load and moment load capacity. The SB-LGC can be used in applications that have traditionally employed 2 parallel shaft/rail systems for stability and to counter over-turning moment loads. With speeds as high as 10M/s, the SB-LGC is a superior option in robotic and automation applications. Rollers are sealed-for-life and allow for maintenance-free operation. Eccentric rollers (on one side of the carriage block) let you dial-in a desired preload, stiffness. The LGC’s lightweight aluminum construction features twin RC60, case hardened shafts for long life and easy installation.

### RAIL AND CARRIAGE BLOCK DIMENSIONS

<table>
<thead>
<tr>
<th>Type</th>
<th>Assembly Dimensions</th>
<th>Carriage Dimensions</th>
<th>Railway Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H</td>
<td>F</td>
<td>A</td>
</tr>
<tr>
<td>SB-LGC100</td>
<td>51</td>
<td>99</td>
<td>200</td>
</tr>
<tr>
<td>SB-LGC130</td>
<td>51</td>
<td>130</td>
<td>230</td>
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</tbody>
</table>
Life is determined by roller life. System life varies with load, system acceleration/speed, environment and detrimental conditions such as vibration/shock, contamination etc. System Life can be calculated by using this formula.
LIFE CALCULATION

The LGC System Life is based on 100km under normal operating conditions.

\[
\text{Life(km)} = \frac{100}{(0.03 + 0.97LF \cdot f)^3}
\]

\(f\) - Reduction coefficient:

- No Vibration/Shock Low Speed (<1m/s) Low Acceleration/Speed No Rapid Oscillation: 1-1.5
- Light Vibration/Shock Medium Acceleration/Speed (12.5m/s) Medium Oscillation: 1.5-2
- Heavy Vibration/Shock High Acceleration/Speed (>2.5m/s) Rapid Oscillation: 2.3-5

\[
\text{TABLE 1.1}
\]

\[
\begin{align*}
LF &= \frac{F_y}{F_{y_{\max}}} + \frac{F_2}{F_{z_{\max}}} + \frac{M_x}{M_{x_{\max}}} + \frac{M_y}{M_{y_{\max}}} + \frac{M_z}{M_{z_{\max}}} \\
F_y &= 60\text{kg} \times 9.8 \text{ (gravity)} = 588 \text{ N} \\
F_2 &= 100 \text{ N} \\
M_x &= 588 \times 0.05 = 29.4 \text{ N\cdotm} \\
M_y &= 0 \\
M_z &= 0 \\
&\text{Take parameters } F_{y_{\max}}, F_{z_{\max}}, M_{x_{\max}}, M_{y_{\max}}, M_{z_{\max}} \text{ from table and then fill in the formula} \\
LF &= \frac{588}{6000} + \frac{10}{6000} + \frac{29.4}{240} + \frac{0}{M_{y_{\max}}} + \frac{0}{M_{z_{\max}}} = 0.2372
\end{align*}
\]

According to the description of working condition, take \(f=1.1\)

\[
\text{Life(km)} = \frac{100}{(0.03 + 0.97LF \cdot f)^3}
\]

\[
= \frac{100}{(0.03 + 0.97 \times 0.2372 \times 1.1)^3}
\]

\[
= 4405 \text{ km}
\]
1. MOUNTING CARRIAGE TO RAILWAY

Mount the assembled carriage plate from the end of the railway. The carriage block should not be forced onto the rail. Make sure the carriage block is preloaded to a point that allows it to be easily mounted to the track. Once on the track, adjust the eccentric rollers to an acceptable preload.

2. ECCENTRIC ADJUSTMENT

1. Tighten Concentric Rollers
2. Rotate Eccentric Rollers by inserting a hex key wrench into the end of the stud/post
3. Continue rotating the eccentric rollers to zero clearance
4. Move the carriage plate by hand and adjust until you feel a slight slipping resistance
5. Maintain eccentric roller position and secure nut(s)

NOTE: Over preloading the system will decrease system life.

SB-LGC SYSTEM OPERATIONAL DATA
Max Speed: 10 m/s
Max Acceleration: 50 m/s²
Operational Temperature Limits: -20°C~+80°C

SB-LGC FEATURES
High Speed · Low Friction · Low Noise · Smooth Running
High Loads and Moment Load Capacity
Adjustable Preload
Accurate and Stable Linear Platform

ACCURACY

Tolerance H: ±0.20mm

NOTE: Higher accuracies are available upon request.