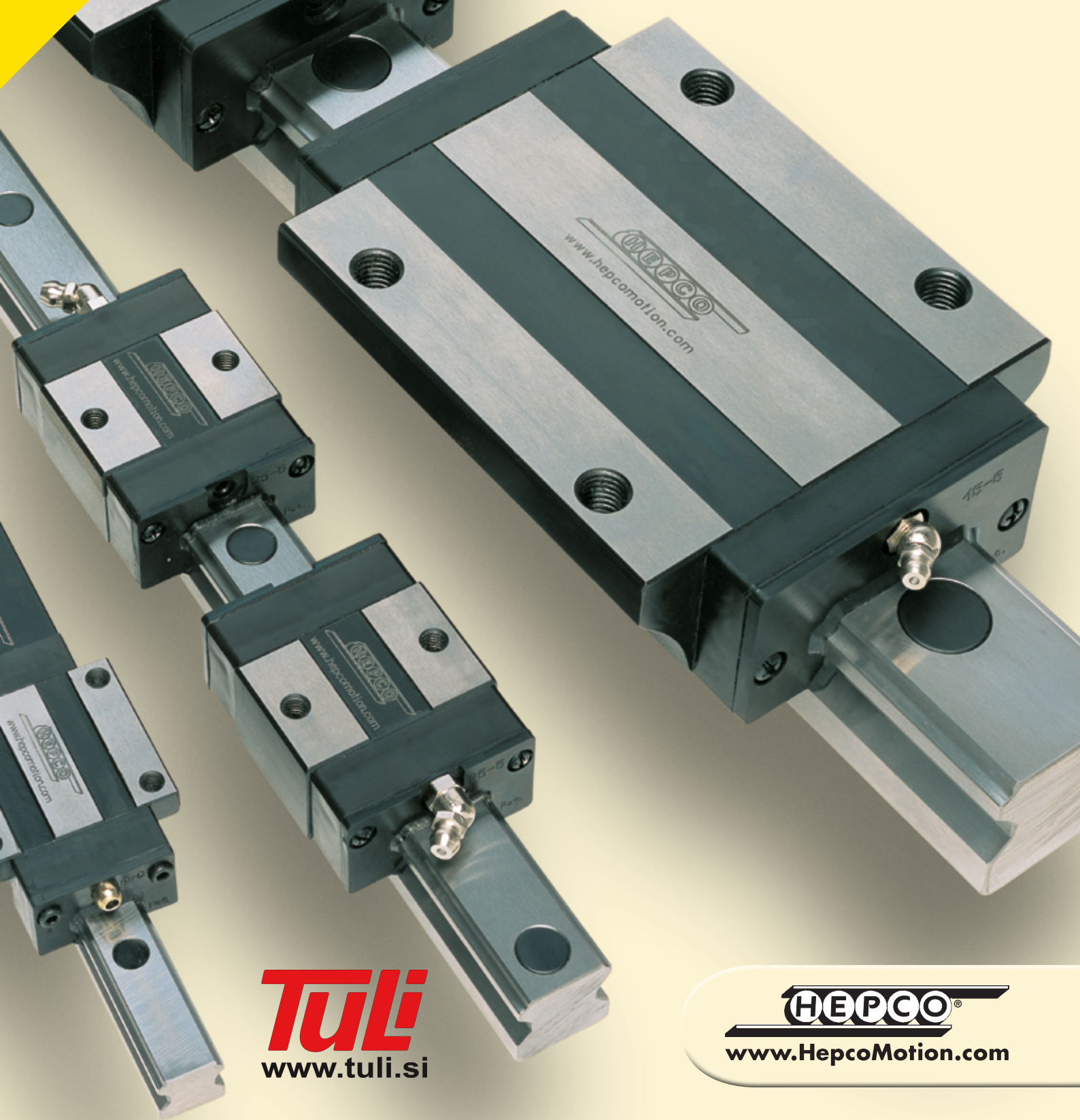


NEW
CORROSION RESISTANT OPTION
AND BRAKE LOCKING DEVICE

HepcoMotion®

LBG

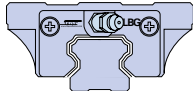
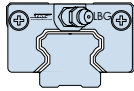
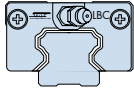
Linear Ball Guides



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www.tuli.si

HEPCO®
www.HepcoMotion.com

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Introducing the HepcoMotion®

LBG Linear Ball Guides

Hepco's LBG Linear Ball Guides offer a comprehensive range of sizes, precisions and pre-load options designed to meet a broad range of applications where quality, accuracy, capacity, high reliability and interchangeability across international standard are considered prime requirements.

The **LBG** range has been designed and constructed around the Four Row Angular Contact ball track concept, thereby offering distinct user benefits such as low friction and reduced differential slip, higher loads, installation compliance and the ability to absorb minor errors on the mounting surfaces without compromising smooth movement and system performance (Figure 1).

In keeping with Hepco tradition the **LBG** range offers several unique design features setting it apart from other ball based linear guideways. The newly developed ball recirculating system has excellent performance characteristics resulting in – reduced friction, low noise and smooth movement. As with all bearing based recirculating systems it is important to ensure that the blocks are kept well lubricated during operation and regular lubrication intervals are observed.

The built-in Felt Wiper within the **LBG** block aids lubrication helping to maintain a positive oil film at the bearing contact surfaces (Figure 2).

The Hepco LBG range (Rails & Blocks) can be specified with a corrosion resistant treatment for added surface protection. Please contact Hepco's technical department for details.

Hepco LBG: Four Row Angular Contact Configuration

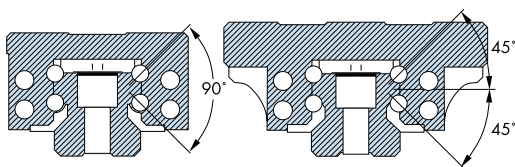


Figure 1

Bearing Block Configuration

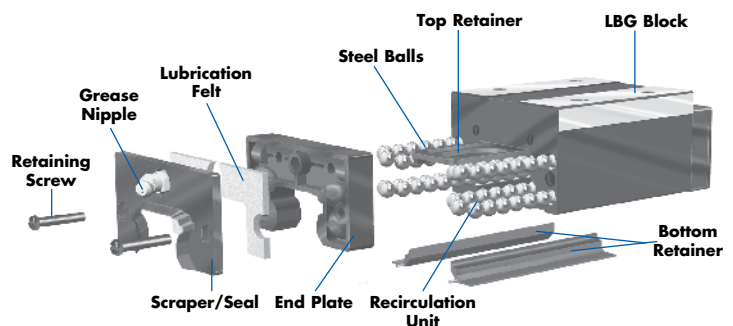


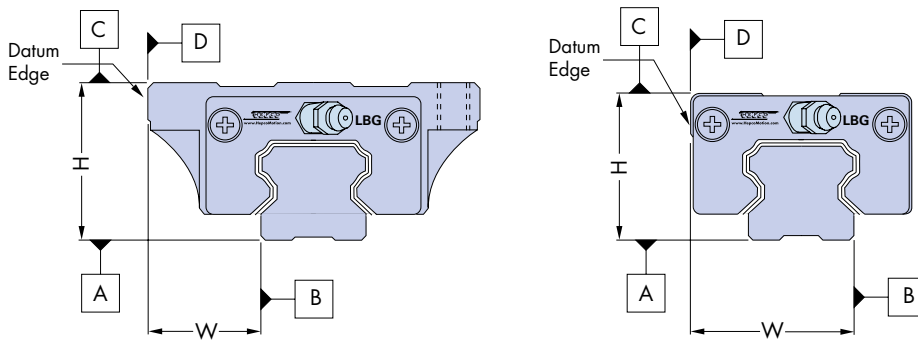
Figure 2

Hepco LBG – Features and Benefits

- Built-in Felt Wiper – Aids lubrication
- Angular Contact Configuration – Equal load carrying in four directions
- New Recirculation System – Smooth running/improved performance
- Range of Precisions – Satisfies a broad range of applications
- Integral All Round Sealing – Added protection
- Corrosion Resistant option - Surface protection
- High Accuracy – High levels of repeatability
- Interchangeable with International Standard
- Competitive prices – low installation costs
- Ex-Stock Delivery – Order with confidence

Accuracy Details LBG

Accuracy Standard



Unit : mm

| Item \ Grade | Normal (N) see note | High (H) | Precision (P) | Super Precision (SP) | Ultra Precision (UP) |
|---|-----------------------|----------|---------------|----------------------|----------------------|
| Tolerance on Height (H) | ±0.1 | ±0.04 | 0 -0.04 | 0 -0.02 | 0 -0.01 |
| Tolerance on Width (W) | ±0.1 | ±0.04 | 0 -0.04 | 0 -0.02 | 0 -0.01 |
| Difference on Heights (▲ H) | 0.03 | 0.02 | 0.01 | 0.005 | 0.003 |
| Difference on Widths (▲ W) | 0.03 | 0.02 | 0.01 | 0.005 | 0.003 |
| Running Parallelism of LB Block Surface C with respect to Surface A | ▲ C Refer to Figure 1 | | | | |
| Running Parallelism of LB Block Surface D with respect to Surface B | ▲ D Refer to Figure 1 | | | | |

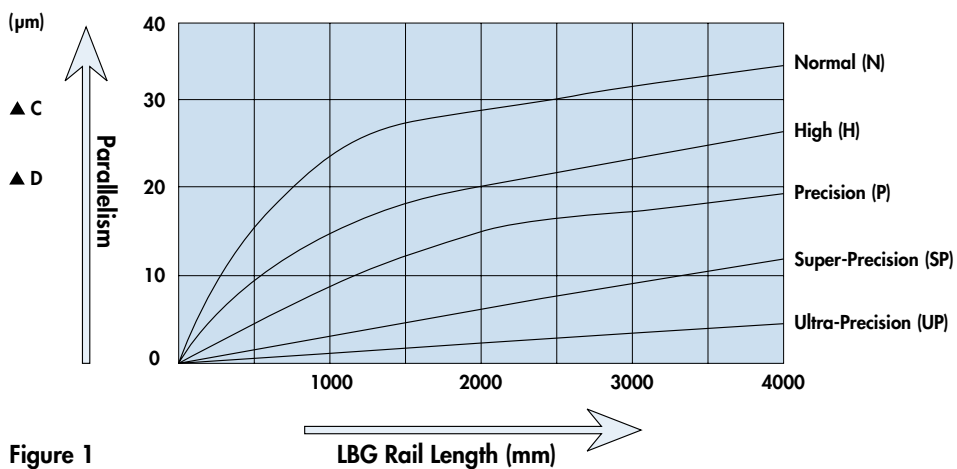
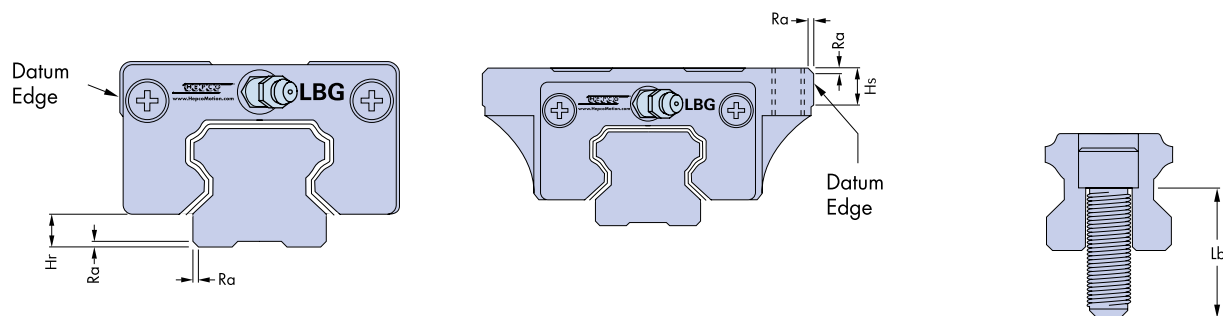


Figure 1

Assembly Details LBG

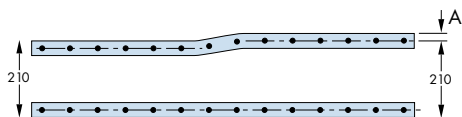


Unit : mm

| Item Ref | (Ra) Max Fillet | (Hr) Max Height Rail Shoulder | (Hs) Max Height Block Shoulder | (Lb) Bolt Size/Length: Rail | Bolt Tightening Torque Unit : Nm | |
|-----------------|--------------------|-------------------------------------|--------------------------------------|-----------------------------------|-------------------------------------|---------------------------------|
| | | | | | Steel Base | High Strength Aluminium Base |
| LBG - 15 | 0.8 | 4 | 5 | M4 x 16 | 2.7 | 2.7 |
| LBG - 20 | 0.8 | 4.5 | 6 | M5 x 20 | 5.5 | 5.5 |
| LBG - 25 | 1.2 | 6 | 7 | M6 x 25 | 9.5 | 9.5 |
| LBG - 30 | 1.2 | 8 | 8 | M8 x 30 | 23 | 23 |
| LBG - 35 | 1.2 | 8.5 | 9 | M8 x 30 | 23 | 18 |
| LBG - 45 | 1.6 | 12 | 11 | M12 x 40 | 80 | 60 |
| LBG - 55 | 1.6 | 13 | 12 | M14 x 45 | 125 | 125 |

Mounting Surface Tolerance

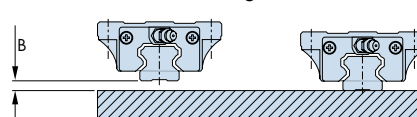
1. Tolerance for Parallelism between two rails.



Unit : μm (A)

| Grade Ref | Z3 | Z2 | Z1 | Z0 see note | ZF |
|-----------------|----|----|----|----------------|----|
| LBG - 15 | – | 15 | 18 | 25 | 25 |
| LBG - 20 | – | 18 | 20 | 25 | 25 |
| LBG - 25 | 15 | 20 | 22 | 30 | 30 |
| LBG - 30 | 20 | 27 | 30 | 40 | 40 |
| LBG - 35 | 22 | 30 | 35 | 50 | 50 |
| LBG - 45 | 25 | 35 | 40 | 60 | 60 |
| LBG - 55 | 30 | 45 | 50 | 70 | 95 |

2. Tolerance for Mounting to a level surface.



Unit : μm (B)

| Grade Ref | Z3 | Z2 | Z1 | Z0 see note | ZF |
|-----------------|-----|-----|-----|----------------|-----|
| LBG - 15 | 30 | 50 | 85 | 130 | 130 |
| LBG - 20 | 30 | 50 | 85 | 130 | 130 |
| LBG - 25 | 40 | 70 | 85 | 130 | 130 |
| LBG - 30 | 50 | 90 | 110 | 170 | 170 |
| LBG - 35 | 70 | 120 | 150 | 210 | 210 |
| LBG - 45 | 80 | 140 | 170 | 250 | 250 |
| LBG - 55 | 125 | 170 | 210 | 300 | 420 |

Preload Forces

Basic Dynamic Load Rating : C

| Grade | Symbol | Preload Force |
|-----------------------|--------|------------------|
| Clearance | ZF | 0 |
| Zero Preload | Z0 | 0 |
| Light Preload | Z1 | 0.02C |
| Medium Preload | Z2 | 0.05C |
| Heavy Preload | Z3 | 0.07C |

For further advice and assistance on mounting and assembly – please contact our Technical Department.

Selection Details LBG

Hepco's range of Linear Ball Guides are designed to interchange with international standards and come with a range of options to give the user choice in design and selection.

Hepco offer a full range of sizes with precisions and preloads to meet your particular application requirements. All the options listed are available on a short lead time basis. To enable Ex-stock delivery a selected range across the most popular sizes, in '**N**' – **Normal** Precision and '**Z1**' **Light** Preload, are held in stock, these are marked with the **Stock Range** symbol on the relevant pages.

As with all Hepco products a full selection and application advisory service is offered via our Technical Department – please contact our Sales Department for advice and assistance.

| Accuracy Grades | | |
|-----------------|-----------------|-------------|
| 'N' | Normal | Stock Range |
| 'H' | High Grade | |
| 'P' | Precision Grade | |
| 'SP' | Super Precision | |
| 'UP' | Ultra Precision | |

See page 2 for accuracy details.

| Preload Grades | | |
|----------------|----------------|-------------|
| 'ZF' | Clearance | |
| 'ZO' | Zero Preload | |
| 'Z1' | Light Preload | Stock Range |
| 'Z2' | Middle Preload | |
| 'Z3' | Heavy Preload | |

See page 3 for preload details.

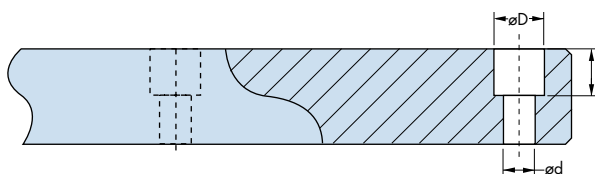
| Block/Flange Selection | | |
|------------------------|------------------------------------|-----------------|
| 'F' | With Flange | Stock Range |
| 'W' | Without Flange | Stock Range |
| 'T' | Through Hole with Flange | Ask for Details |
| 'FL' | Long Type with Flange | Stock Range |
| 'WL' | Long Type without Flange | Stock Range |
| 'TL' | Long Type Through Hole with Flange | Ask for Details |
| 'WS' | Short Type without Flange | Stock Range |

See page 15 for part number configuration and full ordering details.

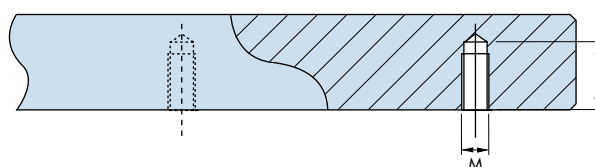
Linear Rail Options

| PART No. | dxDxh |
|-----------|-------------|
| LBG – 15N | 4.5x7.5x5.3 |
| LBG – 20N | 6x9.5x8.5 |
| LBG – 25N | 7x11x9 |
| LBG – 30N | 9x14x12 |
| LBG – 35N | 9x14x12 |
| LBG – 45N | 14x20x17 |

Mounting from above



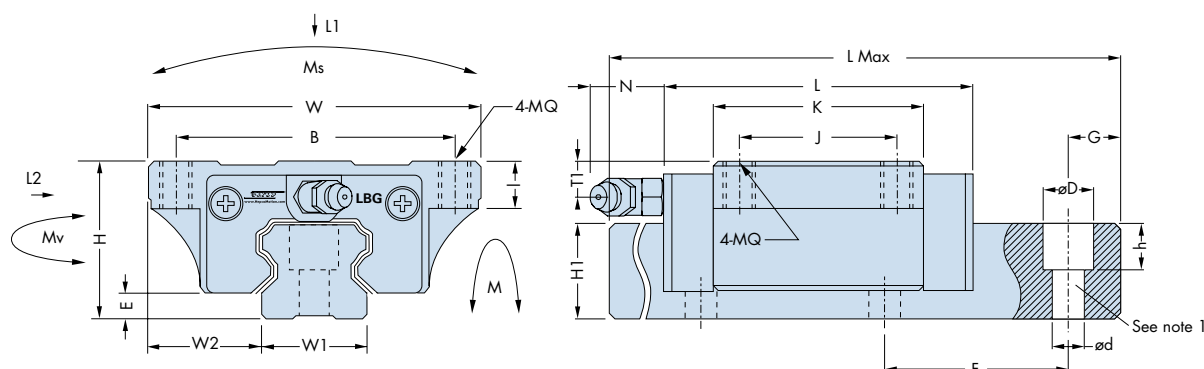
Mounting from below



| PART No. | MxL |
|------------|--------|
| LBG15N – K | M5x8 |
| LBG20N – K | M6x10 |
| LBG25N – K | M6x12 |
| LBG30N – K | M8x15 |
| LBG35N – K | M8x17 |
| LBG45N – K | M12x24 |

LBG--F International Standard – with Flange

'F' = Tapped Hole **'T' = Through Hole** **'FL' = Long Type Tapped Hole** **'TL' = Long Type Through Hole**



Customer to specify end hole position 'G'. If 'G' is not specified, dimensions will be equal both ends based on 'L' overall rail length.
Rail Options - Through Hole mounting from above (N) - Tapped Hole mounting from below (NK) please see page 4

| Ref No. | System Assembly (mm) | | | | LBG Block (mm) | | | | | | | LBG Rail (mm) | | | |
|------------|----------------------|-----|------|-----|----------------|--------|--------|-------|----------|-----|------|---------------|----|-----|-------------|
| | H | W | W2 | E | L | BxJ | MQxI | K | Oil hole | T1 | N | W1 | H1 | F | dxDxh |
| LBG - 15F | 24 | 47 | 16 | 4.6 | 66 | 38x30 | M5x8 | 40 | Ø3 | 4.3 | 5 | 15 | 14 | 60 | 4.5x7.5x5.3 |
| LBG - 20F | 30 | 63 | 21.5 | 5 | 77.8 | 53x40 | M6x9 | 48.8 | M6x1 | 7 | 15.6 | 20 | 18 | 60 | 6x9.5x8.5 |
| LBG - 20FL | | | | | 92.4 | | | 63.4 | | | | | | | |
| LBG - 25F | 36 | 70 | 23.5 | 7 | 88 | 57x45 | M8x12 | 57 | M6x1 | 7.8 | 15.6 | 23 | 22 | 60 | 7x11x9 |
| LBG - 25FL | | | | | 110.1 | | | 79.1 | | | | | | | |
| LBG - 30F | 42 | 90 | 31 | 9 | 109 | 72x52 | M10x12 | 72 | M6x1 | 7 | 15.6 | 28 | 26 | 80 | 9x14x12 |
| LBG - 30FL | | | | | 131.3 | | | 94.3 | | | | | | | |
| LBG - 35F | 48 | 100 | 33 | 9.5 | 109 | 82x62 | M10x13 | 80 | M6x1 | 8 | 15.6 | 34 | 29 | 80 | 9x14x12 |
| LBG - 35FL | | | | | 134.8 | | | 105.8 | | | | | | | |
| LBG - 45F | 60 | 120 | 37.5 | 14 | 138.2 | 100x80 | M12x15 | 105 | M8x1 | 8.5 | 16 | 45 | 38 | 105 | 14x20x17 |
| LBG - 45FL | | | | | 163 | | | 129.8 | | | | | | | |

| Ref No. | Ref Data (mm) | | Basic Load Rating (N) | | Moment Load Rating (Nm) | | | Weight (Kg) | |
|------------|---------------|---------|-----------------------|--------|-------------------------|-------|--------|-------------|-----------|
| | Lmax | G (min) | L1 Max | L2 Max | Ms Max | M Max | Mv Max | Block (Kg) | Rail Kg/m |
| LBG - 15F | 4000 | 10 | 8500 | 8500 | 52 | 41 | 41 | 0.19 | 1.4 |
| LBG - 20F | 4000 | 10 | 14500 | 14500 | 125 | 102 | 102 | 0.4 | 2.6 |
| LBG - 20FL | | | 19000 | 19000 | 163 | 134 | 134 | 0.52 | |
| LBG - 25F | 4000 | 10 | 21400 | 21400 | 193 | 171 | 166 | 0.57 | 3.6 |
| LBG - 25FL | | | 29960 | 29960 | 270 | 240 | 232 | 0.72 | |
| LBG - 30F | 4000 | 12 | 29800 | 29800 | 326 | 271 | 266 | 1.1 | 5.2 |
| LBG - 30FL | | | 39000 | 39000 | 426 | 353 | 353 | 1.4 | |
| LBG - 35F | 4000 | 12 | 39600 | 39600 | 542 | 424 | 412 | 1.6 | 7.2 |
| LBG - 35FL | | | 52300 | 52300 | 705 | 536 | 536 | 2 | |
| LBG - 45F | 4000 | 16 | 67400 | 67400 | 1203 | 947 | 936 | 2.7 | 12.3 |
| LBG - 45FL | | | 83300 | 83300 | 1488 | 1170 | 1170 | 3.6 | |

Notes:

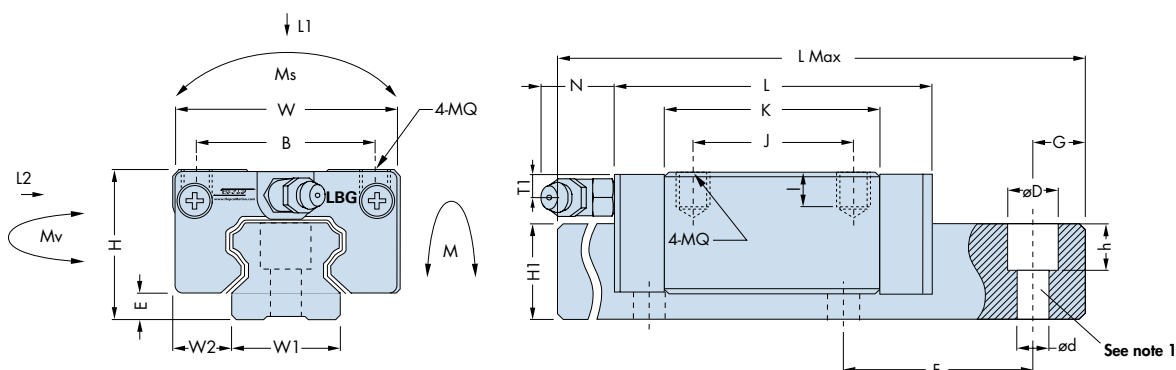
- For screw size and torque details see assembly details page 3.
- See page 15 for part number confirmation and ordering details.

Stock Range

LBG--W International Standard – without Flange

'W' = Without Flange

'WL' = Long Type without Flange



Customer to specify end hole position 'G'. If 'G' is not specified, dimensions will be equal both ends based on 'L' overall rail length.
Rail Options - Through Hole mounting from above (N) - Tapped Hole mounting from below (NK) please see page 4

| Ref No. | System Assembly (mm) | | | | LBG Block (mm) | | | | | | | LBG Rail (mm) | | | |
|------------|----------------------|----|------|-----|----------------|-------|---------|-------|----------|------|------|---------------|----|-----|-------------|
| | H | W | W2 | E | L | BxJ | MQx I | K | Oil hole | T1 | N | W1 | H1 | F | dxDxh |
| LBG - 15W | 28 | 34 | 9.5 | 4.6 | 66 | 26x26 | M4x6.4 | 40 | Ø3 | 8.3 | 5 | 15 | 14 | 60 | 4.5x7.5x5.3 |
| LBG - 20W | 30 | 44 | 12 | 5 | 77.8 | 32x36 | M5x8 | 48.8 | M6x1 | 7 | 15.6 | 20 | 18 | 60 | 6x9.5x8.5 |
| LBG - 20WL | | | | | 92.4 | 32x50 | | 63.4 | | | | | | | |
| LBG - 25W | 40 | 48 | 12.5 | 7 | 88 | 35x35 | M6x9.6 | 57 | M6x1 | 11.8 | 15.6 | 23 | 22 | 60 | 7x11x9 |
| LBG - 25WL | | | | | 110.1 | 35x50 | | 79.1 | | | | | | | |
| LBG - 30W | 45 | 60 | 16 | 9 | 109 | 40x40 | M8x12.8 | 72 | M6x1 | 10 | 15.6 | 28 | 26 | 80 | 9x14x12 |
| LBG - 30WL | | | | | 131.3 | 40x60 | | 94.3 | | | | | | | |
| LBG - 35W | 55 | 70 | 18 | 9.5 | 109 | 50x50 | M8x12.8 | 80 | M6x1 | 15 | 15.6 | 34 | 29 | 80 | 9x14x12 |
| LBG - 35WL | | | | | 134.8 | 50x72 | | 105.8 | | | | | | | |
| LBG - 45W | 70 | 86 | 20.5 | 14 | 138.2 | 60x60 | M10x16 | 105 | M8x1 | 18.5 | 16 | 45 | 38 | 105 | 14x20x17 |
| LBG - 45WL | | | | | 163 | 60x80 | | 129.8 | | | | | | | |

| Ref No. | Ref Data (mm) | | Basic Load Rating (N) | | Moment Load Rating (Nm) | | | Weight (Kg) | |
|------------|---------------|----|-----------------------|--------|-------------------------|-------|--------|-------------|-----------|
| | Lmax | G | L1 Max | L2 Max | Ms Max | M Max | Mv Max | Block (Kg) | Rail Kg/m |
| LBG - 15W | 4000 | 10 | 8500 | 8500 | 52 | 41 | 41 | 0.21 | 1.4 |
| LBG - 20W | 4000 | 10 | 14500 | 14500 | 125 | 102 | 102 | 0.31 | 2.6 |
| LBG - 20WL | | | 19000 | 19000 | 163 | 134 | 134 | 0.47 | |
| LBG - 25W | 4000 | 10 | 21400 | 21400 | 193 | 171 | 166 | 0.45 | 3.6 |
| LBG - 25WL | | | 29960 | 29960 | 270 | 240 | 232 | 0.56 | |
| LBG - 30W | 4000 | 12 | 29800 | 29800 | 326 | 271 | 266 | 0.91 | 5.2 |
| LBG - 30WL | | | 39000 | 39000 | 426 | 353 | 353 | 1.2 | |
| LBG - 35W | 4000 | 12 | 39600 | 39600 | 542 | 424 | 412 | 1.5 | 7.2 |
| LBG - 35WL | | | 52300 | 52300 | 705 | 536 | 536 | 1.9 | |
| LBG - 45W | 4000 | 16 | 67400 | 67400 | 1203 | 947 | 936 | 2.3 | 12.3 |
| LBG - 45WL | | | 83300 | 83300 | 1488 | 1170 | 1170 | 2.8 | |

Notes:

- For screw size and torque details see assembly details page 3.
- See page 15 for part number confirmation and ordering details.

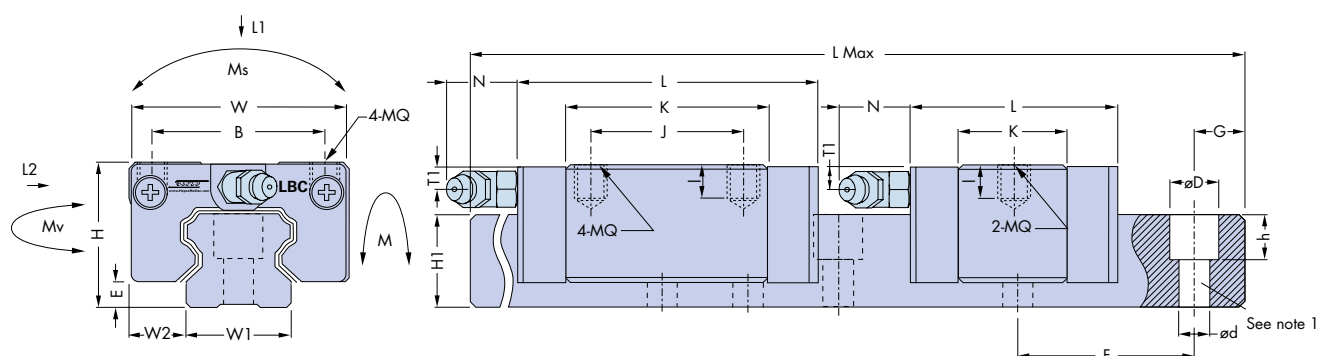
Stock Range

LBC--W Compact Version – without Flange

'W' = Standard Block

'WS' = Short Block

'WL' = Long Block



Customer to specify end hole position 'G'. If 'G' is not specified, dimensions will be equal both ends based on 'L' overall rail length.
Rail Options - Through Hole mounting from above (N) - Tapped Hole mounting from below (NK) please see page 4

| Ref No. | System Assembly (mm) | | | | LBC Block (mm) | | | | | | | LBC Rail (mm) | | | |
|------------|----------------------|----|------|-----|----------------|-------|---------|-------|----------|-----|------|---------------|----|-----|-------------|
| | H | W | W2 | E | L | BxJ | MQxI | K | Oil hole | T1 | N | W1 | H1 | F | dxDxh |
| LBC - 15W | 24 | 34 | 9.5 | 4.6 | 66 | 26x26 | M4x5.6 | 40 | Ø3 | 4.3 | 5 | 15 | 14 | 60 | 4.5x7.5x5.3 |
| LBC - 15WS | | | | | 47.6 | 26x- | | 21.6 | | | | | | | |
| LBC - 20W | 28 | 42 | 11 | 5 | 77.8 | 32x32 | M5x7 | 48.8 | M6x1 | 5 | 15.6 | 20 | 18 | 60 | 6x9.5x8.5 |
| LBC - 20WS | | | | | 58 | 32x- | | 28 | | | | | | | |
| LBC - 25W | 33 | 48 | 12.5 | 7 | 88 | 35x35 | M6x8.4 | 57 | M6x1 | 4.8 | 15.6 | 23 | 22 | 60 | 7x11x9 |
| LBC - 25WS | | | | | 62.5 | 35x- | | 31.5 | | | | | | | |
| LBC - 25WL | | | | | 110.1 | 35x50 | | 79.1 | | | | | | | |
| LBC - 30W | 42 | 60 | 16 | 9 | 109 | 40x40 | M8x11.2 | 72 | M6x1 | 7 | 15.6 | 28 | 26 | 80 | 9x14x12 |
| LBC - 30WS | | | | | 75.6 | 40x- | | 38.6 | | | | | | | |
| LBC - 30WL | | | | | 131.3 | 40x60 | | 94.3 | | | | | | | |
| LBC - 35W | 48 | 70 | 18 | 9.5 | 109 | 50x50 | M8x11.2 | 80 | M6x1 | 8 | 15.6 | 34 | 29 | 80 | 9x14x12 |
| LBC - 35WS | | | | | 74.7 | 50x- | | 45.7 | | | | | | | |
| LBC - 35WL | | | | | 134.8 | 50x72 | | 105.8 | | | | | | | |
| LBC - 45W | 60 | 86 | 20.5 | 14 | 138.2 | 60x60 | M10x14 | 105 | M8x1 | 8.5 | 16 | 45 | 38 | 105 | 14x20x17 |
| LBC - 45WL | | | | | 163 | 60x80 | | 129.8 | | | | | | | |

| Ref No. | Ref Data (mm) | | Basic Load Rating (N) | | Moment Load Rating (Nm) | | | Weight (Kg) | |
|------------|---------------|----|-----------------------|--------|-------------------------|-------|--------|-------------|-----------|
| | Lmax | G | L1 Max | L2 Max | Ms Max | M Max | Mv Max | Block (Kg) | Rail Kg/m |
| LBC - 15W | 4000 | 10 | 8500 | 8500 | 52 | 41 | 41 | 0.17 | 1.4 |
| LBC - 15WS | | | 5100 | 5100 | 32 | 26 | 26 | 0.10 | |
| LBC - 20W | 4000 | 10 | 14500 | 14500 | 125 | 102 | 102 | 0.26 | 2.6 |
| LBC - 20WS | | | 8300 | 8300 | 71 | 58 | 58 | 0.17 | |
| LBC - 25W | 4000 | 10 | 21400 | 21400 | 193 | 171 | 166 | 0.38 | 3.6 |
| LBC - 25WS | | | 11900 | 11900 | 107 | 93 | 92 | 0.21 | |
| LBC - 25WL | | | 29960 | 29960 | 270 | 240 | 232 | 0.53 | |
| LBC - 30W | 4000 | 12 | 29800 | 29800 | 326 | 271 | 266 | 0.81 | 5.2 |
| LBC - 30WS | | | 15950 | 15950 | 174 | 146 | 146 | 0.48 | |
| LBC - 30WL | | | 39000 | 39000 | 426 | 353 | 353 | 1.06 | |
| LBC - 35W | 4000 | 12 | 39600 | 39600 | 542 | 424 | 412 | 1.2 | 7.2 |
| LBC - 35WS | | | 22600 | 22600 | 308 | 240 | 234 | 0.8 | |
| LBC - 35WL | | | 52300 | 52300 | 705 | 536 | 536 | 1.6 | |
| LBC - 45W | 4000 | 16 | 67400 | 67400 | 1203 | 947 | 936 | 2.1 | 12.3 |
| LBC - 45WL | | | 83300 | 83300 | 1488 | 1170 | 1170 | 2.6 | |

Notes:

- For screw size and torque details see assembly details page 3.
- See page 15 for part number confirmation and ordering details.

Stock Range

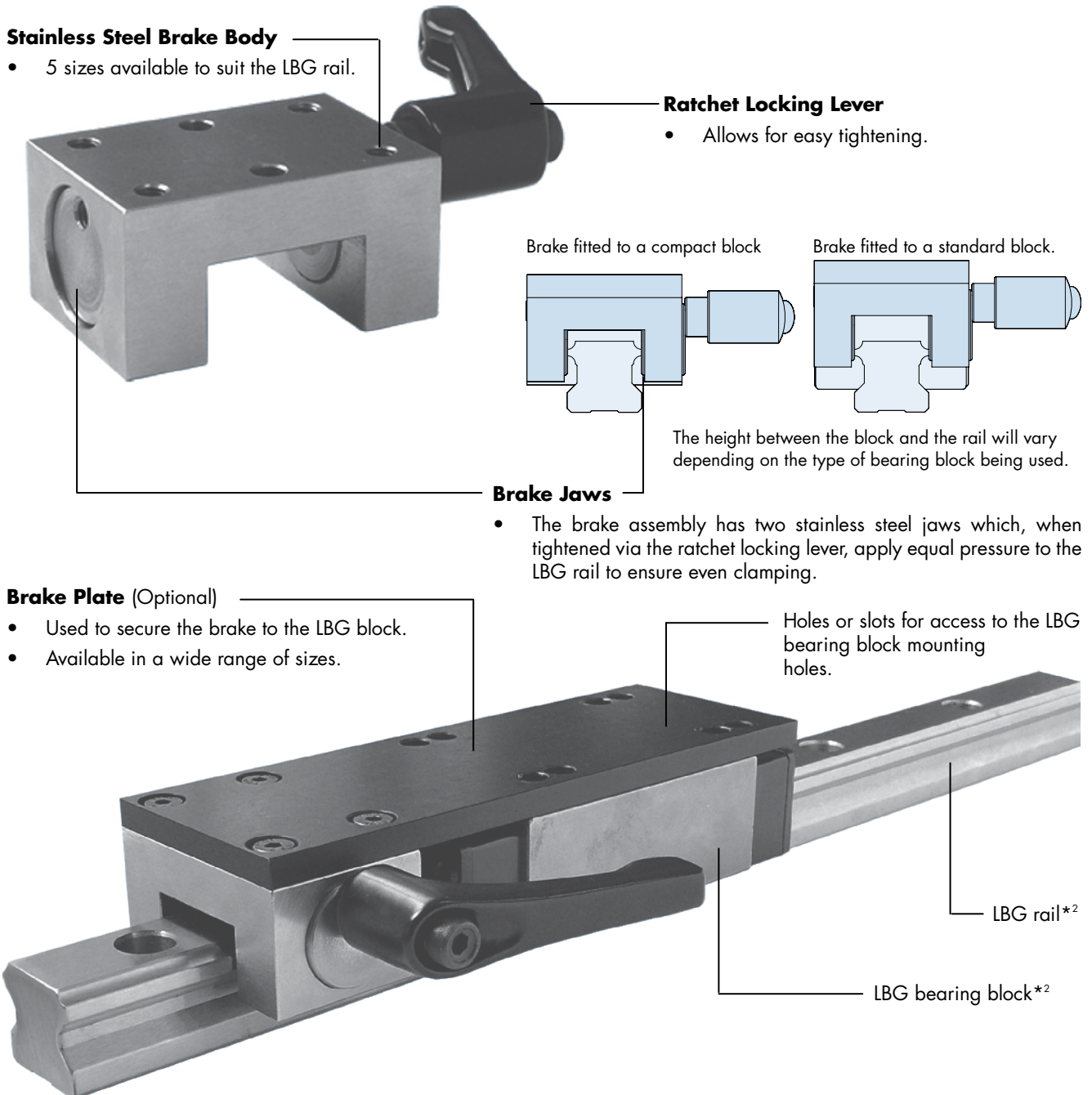
LBG Brake Option

The HepcoMotion® LBG Brake provides a compact, and simple method of locking an LBG Bearing Block in position. The brake is intended for manual locking of a stationary block and can be supplied with a range of brake plates to suit most of the LBG bearing block options. When the brake is applied the resulting clamping force does not impose any load upon the bearing block.

Although tailored to suit Hepco LBG Linear Ball Guides, the brake is equally compatible with other ball guide systems, and is manufactured with all stainless steel components*¹.

Dimensions for all sizes are contained on pages 9-11. For information on how to select an LBG brake or details on a specific application please contact Hepco's technical department.

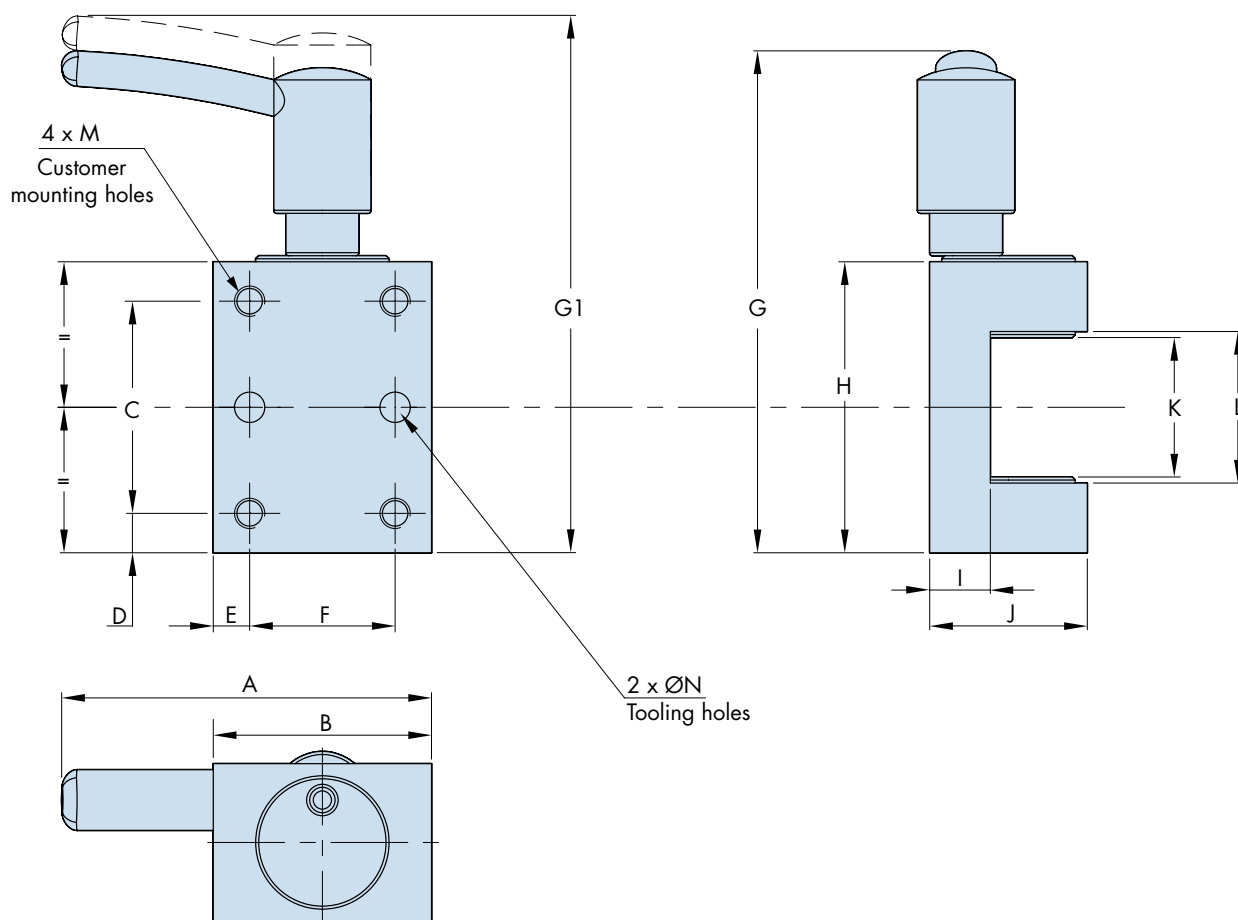
For more information on LBG bearing blocks see the LBG linear ball guides catalogue.



Note:

1. The ratchet locking lever of the LBG15B and LBG20B brakes contain a steel threaded insert and is not available in stainless steel.
2. Please note LBG block and rail are shown for clarity only, not included as part of the brake assembly.

LBG Brake



| LBG Brake | For use with LBG Rail size | A | B | C | D | E | F | G ¹ | G1 ^{*2} | H | I | J | Kmax ^{*2} | Kmin ^{*1} | L | M | N |
|-----------|----------------------------|----|----|----|-----|-----|----|----------------|------------------|----|----|------|--------------------|--------------------|----|-----------|-----------|
| LBG15B | 15 | 56 | 28 | 22 | 6 | 5 | 18 | 72 | 76 | 34 | 9 | 19.5 | 17 | 15 | 17 | M4 x 5 Dp | Ø4 x 5 Dp |
| LBG20B | 20 | 58 | 30 | 32 | 6 | 5 | 20 | 82 | 86 | 44 | 9 | 22 | 22 | 20 | 22 | M4 x 5 Dp | Ø4 x 5 Dp |
| LBG25B | 25 | 61 | 36 | 35 | 6.5 | 6 | 24 | 79 | 83 | 48 | 10 | 26 | 25 | 23 | 25 | M5 x 6 Dp | Ø5 x 6 Dp |
| LBG30B | 30 | 85 | 38 | 40 | 10 | 6.5 | 25 | 104 | 110 | 60 | 15 | 33 | 30 | 28 | 30 | M6 x 8 Dp | Ø6 x 7 Dp |
| LBG35B | 35 | 89 | 46 | 50 | 10 | 7 | 32 | 115 | 121 | 70 | 18 | 38.5 | 36 | 34 | 36 | M6 x 8 Dp | Ø6 x 7 Dp |
| LBG45B | 45 | 90 | 50 | 60 | 13 | 8 | 34 | 132 | 138 | 86 | 21 | 46 | 47 | 45 | 47 | M6 x 8 Dp | Ø6 x 7 Dp |

Ordering Details - Brake only

Product range **LBG** - compatible with LBG, LBC

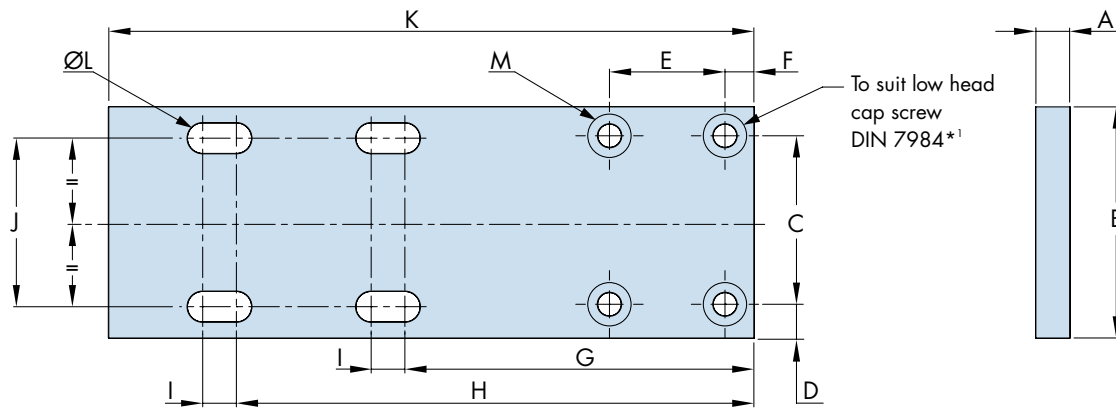
15 LBG rail size: choose from 15, 20, 25, 30, 35 or 45

B Brake

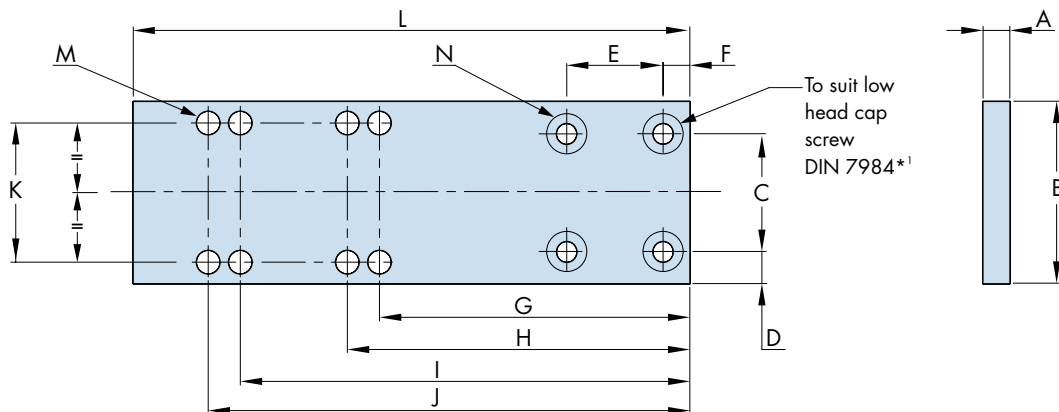
Notes:

- Dimensions G and Kmin are measured with the brake fully tightened against the rail.
- Dimensions G1 and Kmax are measured with the brake released and the handle in the disengaged position.

Brake Plate - for LBG Blocks without flange



| LBG Brake Plate | For use with LBG Block | A | B | C | D | E | F | G | H | I | J | K | ØL | M | | |
|-----------------|------------------------|---|----|----|----|----|-----|-------|-------|-----|----|-----|------|----------|-------|--------|
| | | | | | | | | | | | | | | C/Bore Ø | Depth | Hole Ø |
| LBG20BP1 | LBG-20W LBC-20W | 5 | 44 | 32 | 6 | 20 | 5 | 61 | 93 | 6.5 | 32 | 117 | 5.5 | 7.5 | 3 | 4.5 |
| LBG25BP1 | LBG-25W LBC-25W | 7 | 48 | 35 | 7 | 24 | 6 | 72.5 | 107.5 | 7 | 35 | 134 | 6.5 | 9 | 3.8 | 5.5 |
| LBG25BP2 | LBG-25WL LBC-25WL | 7 | 48 | 35 | 7 | 24 | 6 | 76 | 126 | 4.5 | 35 | 156 | 6.5 | 9 | 3.8 | 5.5 |
| LBG30BP1 | LBG-30W LBC-30W | 8 | 60 | 40 | 10 | 25 | 6.5 | 82.5 | 122.5 | 3.5 | 40 | 157 | 8.5 | 10.5 | 4.3 | 6.5 |
| LBG30BP2 | LBG-30WL LBC-30WL | 8 | 60 | 40 | 10 | 25 | 6.5 | 83.6 | 143.6 | 4.9 | 40 | 179 | 8.5 | 10.5 | 4.3 | 6.5 |
| LBG35BP1 | LBG-35W LBC-35W | 8 | 70 | 50 | 10 | 32 | 7 | 90.5 | 140.5 | 6.5 | 50 | 175 | 8.5 | 10.5 | 4.3 | 6.5 |
| LBG35BP2 | LBG-35WL LBC-35WL | 8 | 70 | 50 | 10 | 32 | 7 | 92.4 | 164.4 | 8.6 | 50 | 200 | 8.5 | 10.5 | 4.3 | 6.5 |
| LBG45BP2 | LBG-45WL LBC-45WL | 8 | 86 | 60 | 13 | 34 | 8 | 106.5 | 186.5 | 5.5 | 60 | 233 | 10.5 | 10.5 | 4.3 | 6.5 |

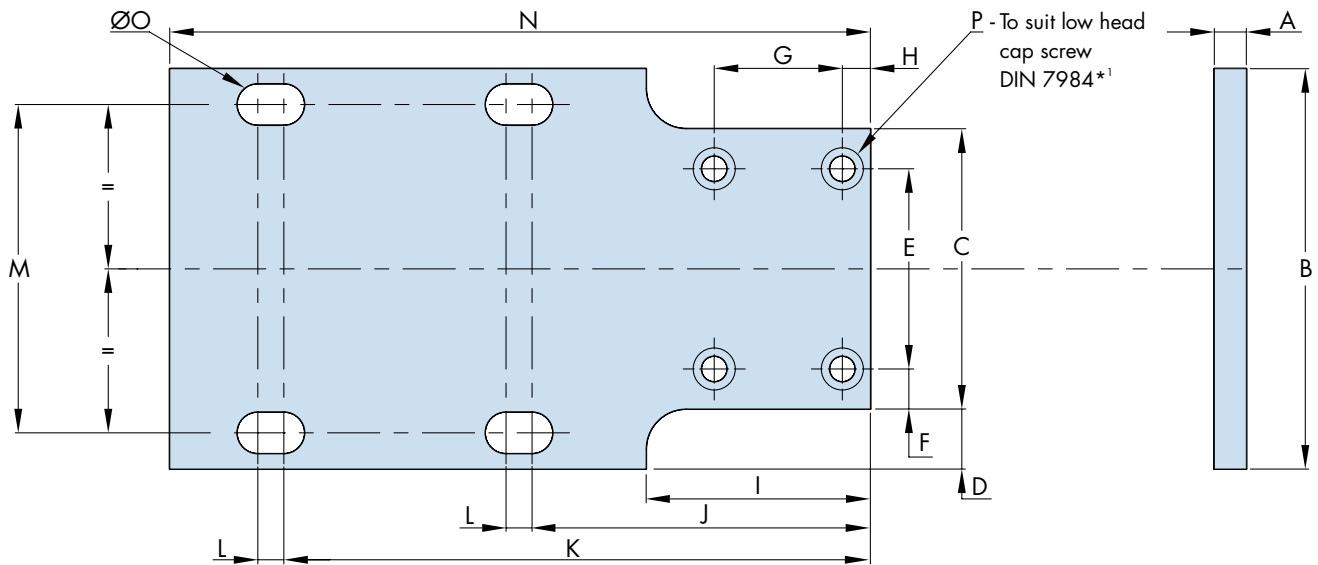


| LBG Brake Plate | For use with LBG Block | A | B | C | D | E | F | G | H | I | J | K | L | M ² | N | | |
|-----------------|------------------------|---|----|----|-----|------|-----|-------|-----|-------|-----|----|-----|----------------|----------|-------|--------|
| | | | | | | | | | | | | | | | C/Bore Ø | Depth | Hole Ø |
| LBG15BP1 | LBG-15W LBC-15W | 5 | 34 | 22 | 6 | 18 | 5 | 58 | 64 | 84 | 92 | 26 | 104 | 8 x Ø4.5 | 7.5 | 3 | 4.5 |
| LBG15BP3 | LBC-15WS | 5 | 34 | 22 | 6 | 18 | 5 | 61.8 | - | - | - | 26 | 84 | 2 x Ø4.5 | 7.5 | 3 | 4.5 |
| LBG20BP3 | LBC-20WS | 5 | 44 | 32 | 6 | 20 | 5 | 69 | - | - | - | 32 | 97 | 2 x Ø5.5 | 7.5 | 3 | 4.5 |
| LBG20BP2 | LBG-20WL | 5 | 44 | 32 | 6 | 20 | 5 | 61.2 | 68 | 111.2 | 118 | 32 | 130 | 8 x Ø5.5 | 7.5 | 3 | 4.5 |
| LBG25BP3 | LBC-25WS | 7 | 48 | 35 | 6.5 | 24 | 6 | 77.25 | - | - | - | 35 | 107 | 2 x Ø6.5 | 9 | 3.8 | 5.5 |
| LBG30BP3 | LBC-30WS | 8 | 60 | 40 | 10 | 25.5 | 6.5 | 85.8 | - | - | - | 40 | 123 | 2 x Ø8.5 | 10.5 | 4.3 | 6.5 |
| LBG35BP2 | LBC-35WS | 8 | 70 | 50 | 10 | 32 | 7 | 98.35 | - | - | - | 50 | 140 | 2 x Ø8.5 | 10.5 | 4.3 | 6.5 |
| LBG45BP1 | LBG-45W LBC-45W | 8 | 86 | 60 | 13 | 34 | 8 | 104 | 164 | - | - | 60 | 208 | 4 x Ø10.5 | 10.5 | 4.3 | 6.5 |

Notes:

- Low head cap screws to DIN 7984 are available from Hepco on request.
- Not all brake plates will have eight holes due to the size of the block to which they fit. The number of holes each will have is as shown in column M.
- Plates are fully machined from aluminium alloy and supplied black anodised.

Brake Plates - for LBG Blocks with flange



| LBG Brake Plate ^{*3} | For use with LBG Block | A | B | C | D | E | F | G | H | I | J | K | L | M | N | ØO | P | | |
|-------------------------------|------------------------|---|-----|----|-----|----|----|----|-----|----|-------|-------|-----|-----|-----|------|----------|-------|--------|
| | | | | | | | | | | | | | | | | | C/Bore Ø | Depth | Hole Ø |
| LBG15BP4 | LBG-15F | 5 | 47 | 34 | 6.5 | 22 | 6 | 18 | 5 | 38 | 56 | 86 | 6 | 38 | 104 | 5.5 | 7.5 | 3 | 4.5 |
| LBG20BP4 | LBG-20F | 5 | 63 | 44 | 9.5 | 32 | 6 | 20 | 5 | 40 | 58.9 | 98.9 | 4.6 | 53 | 117 | 6.5 | 7.5 | 3 | 4.5 |
| LBG20BP5 | LBG-20FL | 5 | 63 | 44 | 9.5 | 32 | 6 | 20 | 5 | 40 | 66.2 | 106.2 | 6.8 | 53 | 132 | 6.5 | 7.5 | 3 | 4.5 |
| LBG25BP4 | LBG-25F | 7 | 70 | 48 | 11 | 35 | 7 | 24 | 6 | 46 | 67.5 | 112.5 | 7 | 57 | 134 | 8.5 | 9 | 3.8 | 5.5 |
| LBG25BP5 | LBG-25FL | 7 | 70 | 48 | 11 | 35 | 7 | 24 | 6 | 46 | 78.5 | 123.5 | 4.5 | 57 | 156 | 8.5 | 9 | 3.8 | 5.5 |
| LBG30BP4 | LBG-30F | 8 | 90 | 60 | 15 | 40 | 10 | 25 | 6.5 | 48 | 76.5 | 128.5 | 3.5 | 72 | 157 | 10.5 | 10.5 | 4.3 | 6.5 |
| LBG30BP5 | LBG-30FL | 8 | 90 | 60 | 15 | 40 | 10 | 25 | 6.5 | 48 | 87.5 | 139.5 | 5 | 72 | 179 | 10.5 | 10.5 | 4.3 | 6.5 |
| LBG35BP4 | LBG-35F | 8 | 100 | 70 | 15 | 50 | 10 | 32 | 7 | 56 | 84.5 | 146.5 | 6.5 | 82 | 175 | 10.5 | 10.5 | 4.3 | 6.5 |
| LBG35BP5 | LBG-35FL | 8 | 100 | 70 | 15 | 50 | 10 | 32 | 7 | 56 | 97.4 | 159.4 | 8.6 | 82 | 200 | 10.5 | 10.5 | 4.3 | 6.5 |
| LBG45BP4 ^{*2} | LBG-45F | 8 | 120 | 86 | 17 | 60 | 13 | 34 | 8 | 60 | 94.1 | 174.1 | - | 100 | 208 | 12.5 | 10.5 | 4.3 | 6.5 |
| LBG45BP5 | LBG-45FL | 8 | 120 | 86 | 17 | 60 | 13 | 34 | 8 | 60 | 106.5 | 186.5 | 5.5 | 100 | 233 | 12.5 | 10.5 | 4.3 | 6.5 |

Notes:

1. Low head cap screws to DIN 7984 are available from Hepco on request.
2. This brake plate will have through holes instead of slots, in the positions as detailed above.
3. Plates are fully machined from aluminium alloy and supplied black anodised.

Ordering Details - Brake plate only

Product range **LBG** **25** **BP** **1**

25 Block size: choose from 15, 20, 25, 30, 35 or 45

Brake plate **BP**

1 Type of plate: Choose from options 1, 2, 3, 4, or 5 - For compatibility see tables 10 & 11.

The LBG brake and brake plates are also available as a complete kit as shown at the bottom of 8. Please contact Hepco's technical department for more information.

Load/Life

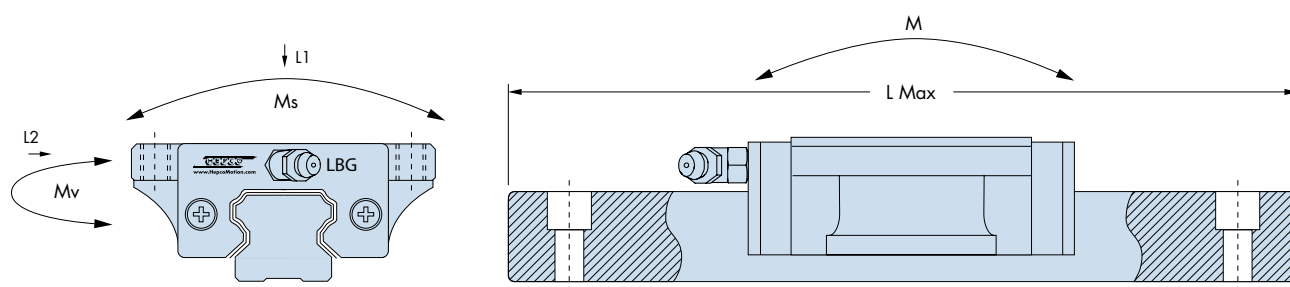
Basic Static/Dynamic Load Rating Co & C

When a linear guide system is subjected to extreme load or impact, permanent deformation can occur between the raceway and rolling elements. Should deformation become excessive the running quality, smoothness and efficiency of the Guideway will be impaired.

The definition of basic load rating Co is stated as – a static load of constant magnitude acting in one direction under which the sum of the deformation of the elements and race way equals 0.0001 times the diameter of the rolling elements. Basic dynamic load rating C is the load of constant magnitude acting in one direction that results in nominal life of 50km for a Guideway using balls.

Basic Static Moment Rating Ms, M, Mv

The basic moment ratings in the Ms, M and Mv direction are stated as static moment capacities in the load rating charts (see pages 5-7).



Safety Factor – Static : fa

The static safety factor fa should be considered related to the basic load rating Co, the acting load and the operating condition. Reference value of the static safety factor fa in given operating conditions is stated as follows:

Factor fa:

| Operating Condition | Applied Load Condition | Minimum fa |
|---------------------|------------------------|------------|
| Static | Small Impact | 1.0 – 1.4 |
| | High Impact Load | 2.0 – 3.0 |
| Dynamic | Small Impact | 1.0 – 2.0 |
| | High Impact Load | 2.5 – 6.0 |

$$fa = (fb \times Co) / P \text{ or } fa = (fb \times Mo) / M$$

| | | |
|----|---|----------------------------|
| fa | : | Static Safety Factor |
| Co | : | Basic Load Rating – Static |
| P | : | Applied Load |
| M | : | Applied Moment |
| fb | : | Mounting Factor |
| Mo | : | Permissible Static Moment |

Technical Data

Mounting Factor : fb

In the Guideway mounting process, where the elements are in close contact it can be difficult to obtain a uniform distribution of the applied load across all the bearing blocks due to mounting face variations. Where two or more Blocks are used in close proximity or where there is a mounting surface variation – multiply the stated basic load ratings C and Co by the mounting factor.

Factor fb:

| Blocks Per System | Mounting Factor fb |
|-------------------|--------------------|
| 2 | 0.8 |
| 3 | 0.71 |
| 4 | 0.65 |
| 5 | 0.60 |
| Normal | 1 |

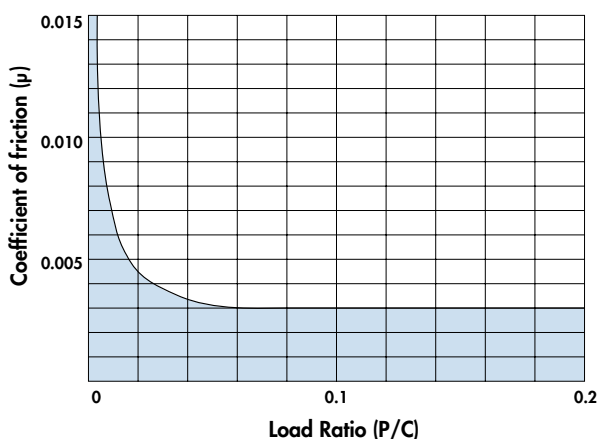
Frictional Resistance : μ

The frictional resistance of a Guideway can be determined using the following formula:

$$F = \mu \times P + f_s$$

F : Frictional resistance (N) P : Load (N)

μ : Coefficient of friction f_s : Seal resistance



P : Load

C : Basic Dynamic Load Capacity

Variable Load Factor : fv

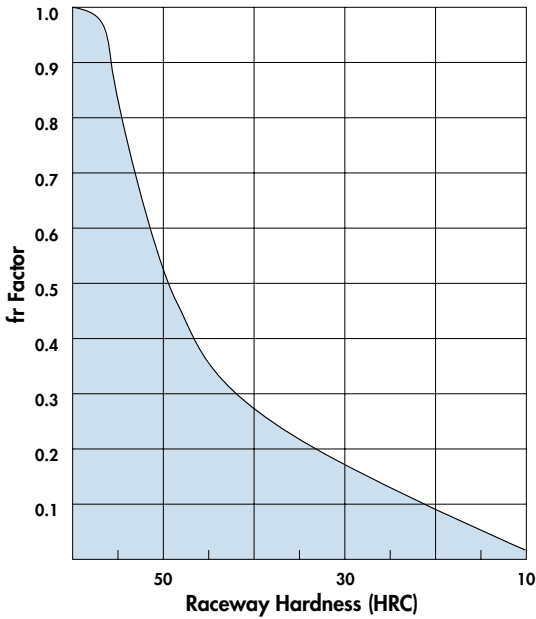
| Impact and Vibration Condition | Travel Speed Velocity (V) | fv |
|---------------------------------|--|-----------|
| No External Impact or Vibration | $V \leq 15 \text{ m / min}$ Low Speed | 1 – 1.5 |
| Slight Impact and Vibration | $15 < V \leq 60 \text{ m / min}$ Medium Speed | 1.5 – 2.0 |
| Medium Impact and Vibration | $V > 60 \text{ m / min}$ High Speed | 2.0 – 3.5 |

Seal Resistance : fs

| Reference No. | Seal Resistance (N) per block |
|---------------|-------------------------------|
| LBG – 15 | 2.6 |
| LBG – 20 | 2.0 |
| LBG – 25 | 3.6 |
| LBG – 30 | 7.1 |
| LBG – 35 | 8.2 |
| LBG – 45 | 9.2 |

Raceway Hardness (HRC) : fr

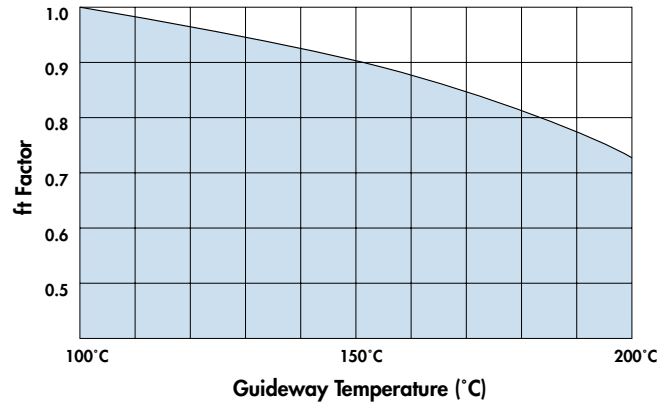
Linear Guides operate at their optimum load carrying capacity with a raceway hardness of HRC 58 to 64. Where the raceway hardness is lower than HRC 58 the hardness factor fr should be applied. Hepco LBG Guides have a hardness value in excess of HRC 58, therefore a fr factor of 1.0 can be used.



Guideway Temperature Factor : ft

Where Linear Guides are working in temperatures in excess of 100°C, a temperature factor ft should be used.

Note: Where the Guideway is subjected to temperatures greater than 80°C or less than -5°C please contact our Technical Department as consideration will have to be given to the seals, lubrication and end plates.



Nominal Life Formula : L

To calculate the life of a system using any of the LBG bearings, first obtain the Lf by entering the values for L1, L2, Ms, Mv and M in respect of the application, together with the maximum load capacities for the bearing from the relevant page, into the equation below.

$$L_f = \frac{L_1}{L_{1(Max)}} + \frac{L_2}{L_{2(Max)}} + \frac{M_s}{M_{s(Max)}} + \frac{M}{M_{(Max)}} + \frac{M_v}{M_{v(Max)}}$$

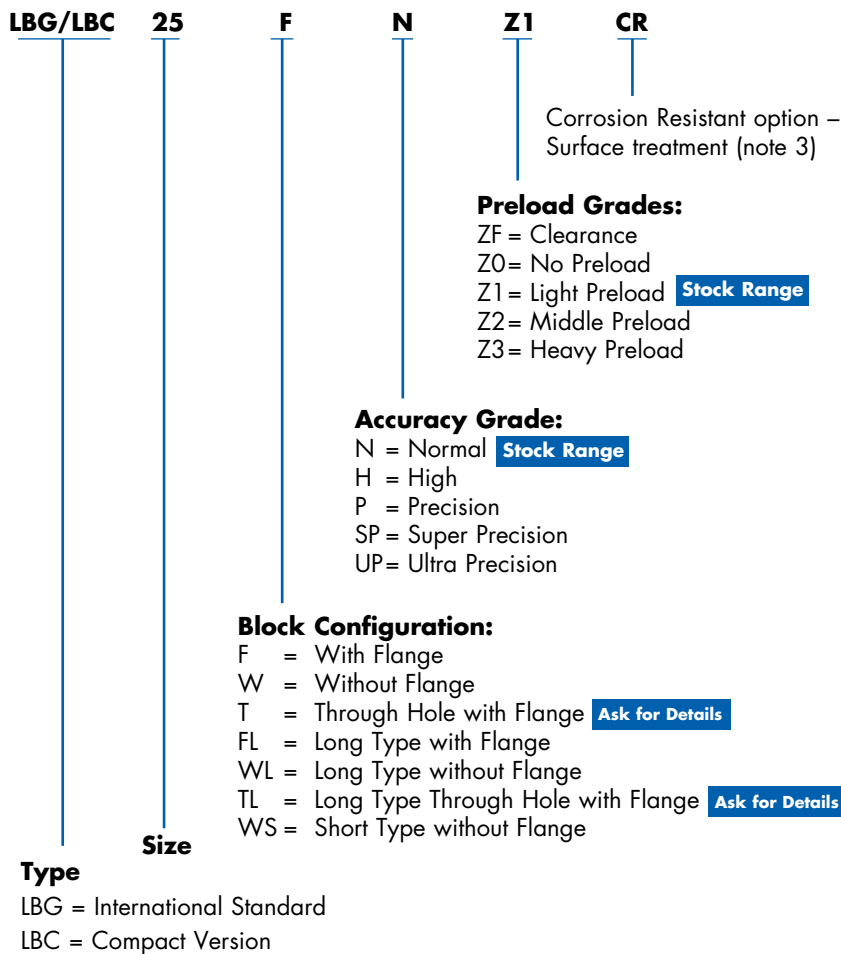
From the Lf figure the life of the system can be obtained from the calculation including factors fr, ft, fb and fv.

$$\text{Life (km)} = 50 \times \left(\frac{1 \times f_r \times f_t \times f_b}{L_f \times f_v} \right)^3$$

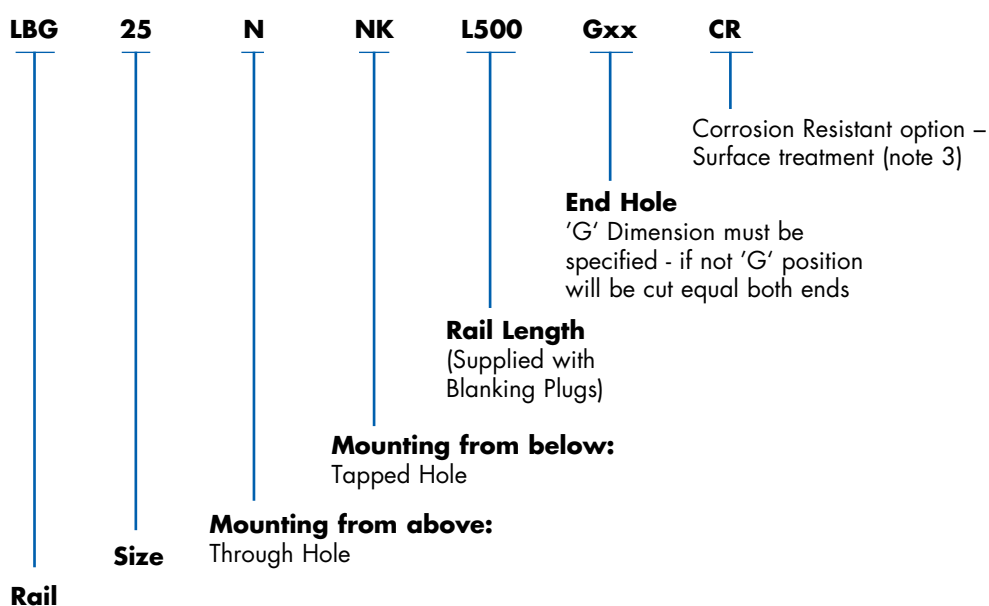
Ordering Details

Using the following part number configurator allows the correct specification of the LBG Guide Rail & Block to be ordered. Ordering details for the LBG Brake and Brake Plate can be seen on pages 9 and 11.

LBG Block



LBG Rail



Notes:

1. Rail lengths greater than 4m can be achieved by butt joining. Please contact Hepco's Technical Department for details.
2. Rails & Blocks can be specified with corrosion resistant surface treatment. Please contact Hepco's Technical Department for details.
3. Please contact Hepco's technical department for details

Notes

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Notes

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