

MGBS

The MGBS is a ball screw driven mini linear unit where the rotary motion (rotation) of the drive shaft is converted to the linear motion (translation) of the carriage with high mechanical efficiency and low internal friction.

High-performance features such as high speed, good positioning accuracy, and high repeatability are ensured through a precision ball screw drive and a linear guiding system.

A preassembled standard motor (in-line with a motor adapter and a coupling or in-parallel with a motor side drive and a timing belt) together with a standard drive, makes the system plug and drive ready. Compact dimensions and optimally selected motor combinations cover a wide range of applications.

Options, such as different ball screw leads, together with a wide range of accessories and possible multi-axis system combinations make this product highly flexible.

□ = Square cross section

Dimensions in mm.

For other CAD files, please contact Rollco.

Ambient Temperature (°C): 0 °C ~ +50 °C

Ambient Temperature without a Motor (°C): 0 °C ~ +60 °C

Protection Class: IP40

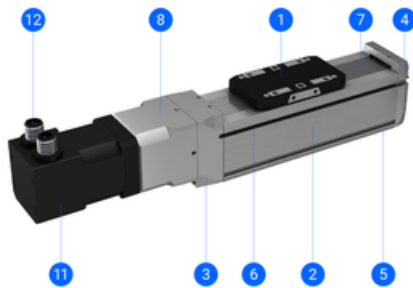
Duty Cycle: 100 %

Maintenance: Life-time pre-lubricated



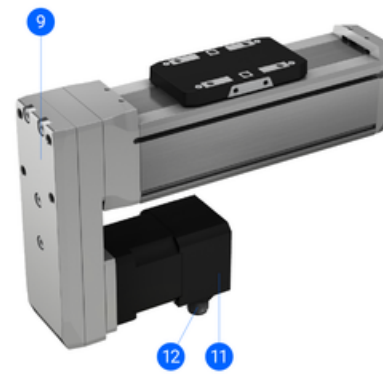


MGBS with motor and motor adapter VK



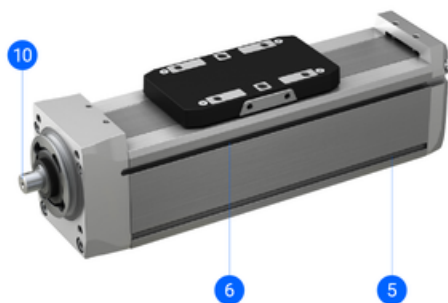
1. Carriage
2. Aluminium profile
3. Drive block
4. End block
5. Mounting slots
6. Slot for the magnetic field sensors
7. Corrosion-resistance protection strip
8. Motor adapter VK with a coupling
11. Preassembled motor (with/without a brake)
12. Standard connectors (motor, encoder and brake - optionally)

MGBS with motor and motor side drive MSD



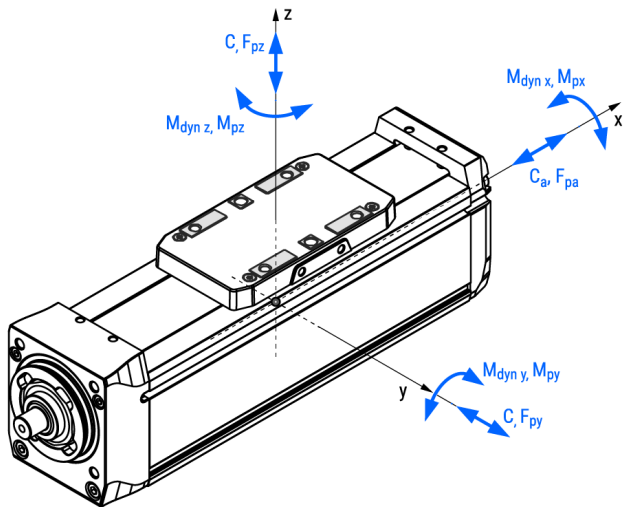
9. Motor side drive MSD with a timing belt
11. Preassembled motor (with/without a brake)
12. Standard connectors (motor, encoder and brake - optionally)

MGBS without motor



5. Mounting slots
6. Slot for the magnetic field sensors
10. Drive shaft of the precision ball screw drive

General Data



The moved mass is already considered in the equation for calculating the mass of the linear unit m_{MGBS} and the mass moment of inertia J_{MGBS} . The moved mass includes the mass of the carriage together with the ball nut.

For the combination with a standard motor and motor adapter VK or motor side drive MSD the mass m_{MGBS} should be increased by m_{VK+m} or m_{MSD+m} respectively.

| | |
|------------------------------|-------------------------------|
| Abs. stroke | Absolute stroke [mm] |
| m_{load} | Applied mass to be moved [kg] |

| Designation | Description | Ball Screw (d x l) | Axial Dynamic Load Capacity C_a (N) | Dynamic Load Capacity C (N) | Dynamic Moment M_x (Nm) |
|------------------------|-----------------|--------------------|---------------------------------------|-----------------------------|---------------------------|
| MGBS 32 - 8x2 | Without a motor | 8 x 2 | 2000 | 1310 | 4.8 |
| MGBS 32 - 8x8 | Without a motor | 8 x 8 | 1500 | 1310 | 4.8 |
| MGBS 45 - 10x3 | Without a motor | 10 x 3 | 3500 | 3240 | 20.1 |
| MGBS 45 - 10x10 | Without a motor | 10 x 10 | 3200 | 3240 | 20.1 |
| MGBS 60 - 12x5 | Without a motor | 12 x 5 | 5000 | 11190 | 77.4 |
| MGBS 60 - 12x10 | Without a motor | 12 x 10 | 3800 | 11190 | 77.4 |

| Designation | Dynamic Moment M_y (Nm) | Dynamic Moment M_z (Nm) | Max. Permissible Loads Forces F_{py} (N) | Max. Permissible Loads Forces F_{pz} (N) | Max. Permissible Loads Moments M_{px} (Nm) | Max. Permissible Loads Moments M_{py} (Nm) |
|------------------------|---------------------------|---------------------------|--|--|--|--|
| MGBS 32 - 8x2 | 4.1 | 4.1 | 200 | 300 | 2.0 | 1.8 |
| MGBS 32 - 8x8 | 4.1 | 4.1 | 200 | 300 | 2.0 | 1.8 |
| MGBS 45 - 10x3 | 17.4 | 17.4 | 400 | 700 | 7.4 | 6.3 |
| MGBS 45 - 10x10 | 17.4 | 17.4 | 400 | 700 | 7.4 | 6.3 |
| MGBS 60 - 12x5 | 79.8 | 79.8 | 850 | 2000 | 29.2 | 30.8 |
| MGBS 60 - 12x10 | 79.8 | 79.8 | 850 | 2000 | 29.2 | 30.8 |

| Designation | Max. Permissible Loads Moments M_{pz} (Nm) | Axial Backlash (mm) | Max. Repeatability (mm) | Absolute Stroke | Max. Permissible Axial Load F_{pa} (N) | Max. Permissible Payload Horizontal mph (kg) |
|-----------------------|--|---------------------|-------------------------|--|--|--|
| MGBS 32 - 8x2 | 1.3 | ≤ 0.06 | ± 0.015 | 50, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 | 285 | 31 |
| MGBS 32 - 8x8 | 1.3 | ≤ 0.06 | ± 0.015 | 50, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 | 285 | 31 |
| MGBS 45 - 10x3 | 4.7 | ≤ 0.06 | ± 0.015 | 50, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 | 695 | 71 |

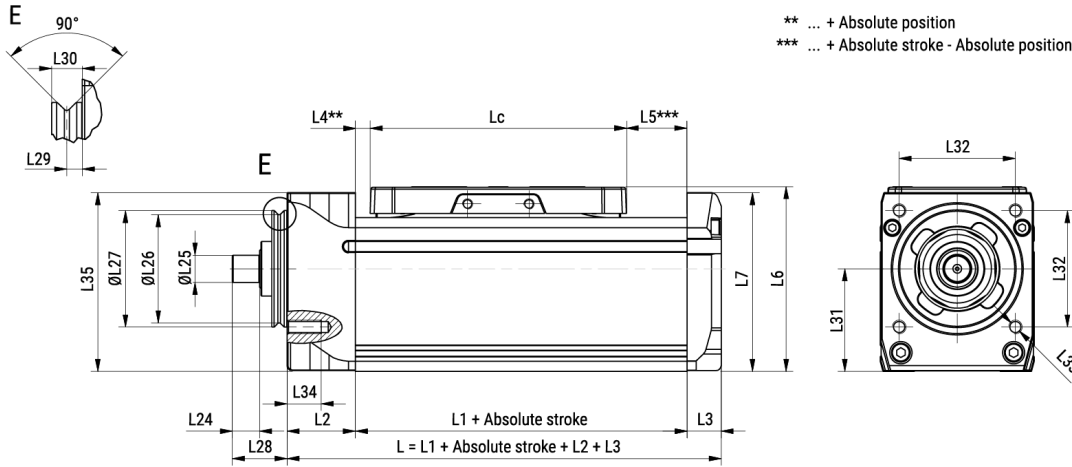
| Designation | Max. Permissible Loads Moments Mpz (Nm) | Axial Backlash (mm) | Max. Repeatability (mm) | Absolute Stroke | Max. Permissible Axial Load Fpa (N) | Max. Permissible Payload Horizontal mph (kg) |
|------------------------|---|---------------------|-------------------------|---|-------------------------------------|--|
| MGBS 45 - 10×10 | 4.7 | ≤ 0.06 | ± 0.015 | 50, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 | 695 | 71 |
| MGBS 60 - 12×5 | 31.8 | ≤ 0.06 | ± 0.010 | 50, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800, 900, 1000 | 1100 | 204 |
| MGBS 60 - 12×10 | 31.8 | ≤ 0.06 | ± 0.010 | 50, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800, 900, 1000 | 1100 | 204 |

| Designation | Max. Permissible Payload Vertical mpv (kg) | Max. Drive Torque Mp (Nm) | No Load Torque Mo (Nm) | Max. Permissible Radial Load on Shaft Fpr (N) | Max. Travel Speed Vmax (m/s) | Max. Rotational Speed (rev/min) |
|------------------------|--|---------------------------|------------------------|---|------------------------------|---------------------------------|
| MGBS 32 - 8×2 | 24 | 0.10 | 0.04 | 50 | 0.150 | 4500 |
| MGBS 32 - 8×8 | 24 | 0.40 | 0.05 | 50 | 0.600 | 4500 |
| MGBS 45 - 10×3 | 59 | 0.37 | 0.10 | 100 | 0.225 | 4500 |
| MGBS 45 - 10×10 | 59 | 1.23 | 0.11 | 100 | 0.750 | 4500 |
| MGBS 60 - 12×5 | 93 | 0.97 | 0.16 | 200 | 0.483 | 5800 |
| MGBS 60 - 12×10 | 93 | 1.95 | 0.17 | 200 | 0.967 | 5800 |

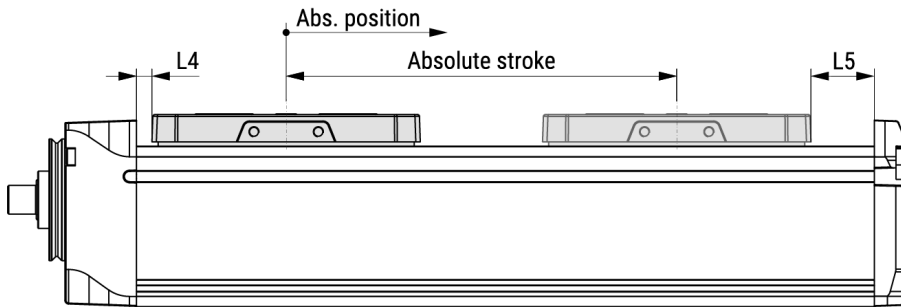
| Designation | Max. Acceleration (m/s ²) | Moved Mass (kg) | Mass of Linear Unit (kg) | Mass Moment of Inertia JMGBS (10 ⁻² kg cm ²) | Planar Moment of Inertia Iy (cm ⁴) | Planar Moment of Inertia Iz (cm ⁴) |
|------------------------|---------------------------------------|-----------------|-----------------------------|---|--|--|
| MGBS 32 - 8×2 | 20 | 0.12 | 0.36 + 0.0015 × Abs. Stroke | 0.85 + 0.0024 × Abs. Stroke + 0.1013 × mload | 4.3 | 4.6 |
| MGBS 32 - 8×8 | 20 | 0.12 | 0.36 + 0.0015 × Abs. Stroke | 1.04 + 0.0025 × Abs. Stroke + 1.6211 × mload | 4.3 | 4.6 |
| MGBS 45 - 10×3 | 20 | 0.23 | 0.80 + 0.0028 × Abs. Stroke | 3.17 + 0.0055 × Abs. Stroke + 0.2280 × mload | 14.3 | 15.9 |
| MGBS 45 - 10×10 | 20 | 0.23 | 0.80 + 0.0028 × Abs. Stroke | 3.72 + 0.0056 × Abs. Stroke + 2.5330 × mload | 14.3 | 15.9 |
| MGBS 60 - 12×5 | 20 | 0.53 | 1.80 + 0.0049 × Abs. Stroke | 11.04 + 0.0132 × Abs. Stroke + 0.6333 × mload | 43.8 | 50.3 |
| MGBS 60 - 12×10 | 20 | 0.53 | 1.80 + 0.0049 × Abs. Stroke | 11.97 + 0.0126 × Abs. Stroke + 2.5330 × mload | 43.8 | 50.3 |

Dimensions

MGBS without motor



Absolute stroke of the MGBS definition



| Designation | Lc | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 |
|-----------------|----|------|----|----|-----|------|------|-------|----|
| MGBS 32 - 8×2 | 65 | 81.5 | 16 | 8 | 2.5 | 14 | 38.5 | 35.75 | 32 |
| MGBS 32 - 8×8 | 65 | 81.5 | 16 | 8 | 2.5 | 14 | 38.5 | 35.75 | 32 |
| MGBS 45 - 10×3 | 75 | 97 | 20 | 10 | 4.3 | 17.7 | 54 | 52.25 | 45 |
| MGBS 45 - 10×10 | 75 | 97 | 20 | 10 | 4.3 | 17.7 | 54 | 52.25 | 45 |
| MGBS 60 - 12×5 | 90 | 136 | 24 | 12 | 3.2 | 42.8 | 72 | 68.75 | 60 |
| MGBS 60 - 12×10 | 90 | 136 | 24 | 12 | 3.2 | 42.8 | 72 | 68.75 | 60 |

| Designation | L9 | L10 | L11 | L12 | L13 | L14 | L15 | L16 | L17 | L18 |
|-----------------|-----|------|-----|-----|-----|-----|-----|------|------|------|
| MGBS 32 - 8×2 | 4.4 | 23.7 | 4 | 5.9 | 18 | M2 | 4 | 14.6 | 18.4 | 22.5 |
| MGBS 32 - 8×8 | 4.4 | 23.7 | 4 | 5.9 | 18 | M2 | 4 | 14.6 | 18.4 | 22.5 |
| MGBS 45 - 10×3 | 4.4 | 36.5 | 5 | 7.8 | 18 | M3 | 6 | 18.6 | 26.4 | 32 |
| MGBS 45 - 10×10 | 4.4 | 36.5 | 5 | 7.8 | 18 | M3 | 6 | 18.6 | 26.4 | 32 |
| MGBS 60 - 12×5 | 4.4 | 45 | 6 | 11 | 30 | M4 | 6 | 25.4 | 38.4 | 45 |
| MGBS 60 - 12×10 | 4.4 | 45 | 6 | 11 | 30 | M4 | 6 | 25.4 | 38.4 | 45 |

| Designation | L19 | L20 | L21 | L22 | L23 | L24 | L25 | L26 | L27 | L28 |
|---------------|-----|-----|-----|--------|-----|-----|--------|------|---------|-----|
| MGBS 32 - 8×2 | 30 | 35 | M3 | 2 (H7) | 5 | 7 | 5 (h7) | 22.6 | 25 (h7) | 14 |

| Designation | L19 | L20 | L21 | L22 | L23 | L24 | L25 | L26 | L27 | L28 |
|------------------------|-----|-----|-----|--------|-----|-----|---------|------|---------|-----|
| MGBS 32 - 8x8 | 30 | 35 | M3 | 2 (H7) | 5 | 7 | 5 (h7) | 22.6 | 25 (h7) | 14 |
| MGBS 45 - 10x3 | 42 | 42 | M4 | 4 (H7) | 6 | 8 | 8 (h7) | 31.6 | 34 | 16 |
| MGBS 45 - 10x10 | 42 | 42 | M4 | 4 (H7) | 6 | 8 | 8 (h7) | 31.6 | 34 | 16 |
| MGBS 60 - 12x5 | 57 | 55 | M5 | 5 (H7) | 8 | 10 | 10 (h7) | 39.6 | 42 | 20 |
| MGBS 60 - 12x10 | 57 | 55 | M5 | 5 (H7) | 8 | 10 | 10 (h7) | 39.6 | 42 | 20 |

| Designation | L29 | L30 | L31 | L32 | L33 | L34 | L35 |
|------------------------|-----|-----|-----|------|-----|-----|-------|
| MGBS 32 - 8x2 | 2.3 | 4.5 | 20 | 24.5 | M3 | 6 | 35.75 |
| MGBS 32 - 8x8 | 2.3 | 4.5 | 20 | 24.5 | M3 | 6 | 35.75 |
| MGBS 45 - 10x3 | 2.3 | 4.5 | 30 | 34 | M4 | 10 | 52.25 |
| MGBS 45 - 10x10 | 2.3 | 4.5 | 30 | 34 | M4 | 10 | 52.25 |
| MGBS 60 - 12x5 | 2.3 | 4.5 | 39 | 48 | M5 | 10 | 68.75 |
| MGBS 60 - 12x10 | 2.3 | 4.5 | 39 | 48 | M5 | 10 | 68.75 |