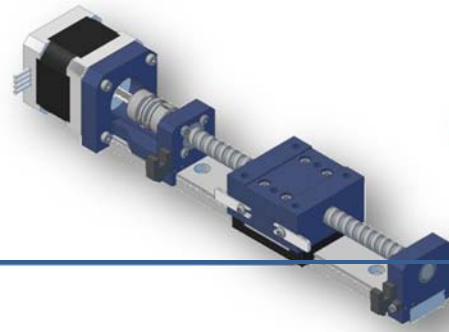


MB17 Series



Minibot Configurable: MB17 - T300 - PS01 - M112 - L22 - Options

Travel

Actuator Travel (xxx = travel in mm)...

Txxx

Leadscrew Drives

Standard Preloaded

Leadscrew: 1mm lead... LS01 PS01

Leadscrew: 5mm lead... LS05 PS05

Ballscrew Drives

Rolled Ground

Ballscrew: 1mm lead... SR0801 SG0801

Ballscrew: 2mm lead... SR0802 SG0802

Ballscrew: 5mm lead... SR0805 SG0805

Ballscrew: 12mm lead... SR0812 SG0812

Motor Options

Standard Step Motor... M172

Integrated Step Motor/Drive/Control with USB... MJ172

Integrated Step Motor/Drive/Control with RS485... MK172

End of Travel Sensor Options

OEM Optical Slot Sensors... L11

Industrial Optical Slot Sensors... L22

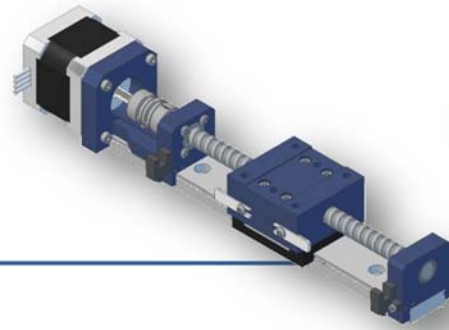
MB17 Performance Specifications

| | LS01 | PS01 | LS05 | PS05 | SR0801 | SG0801 | SR0802 | SG0802 | SR0805 | SG0805 | SR0812 | SG0812 |
|-------------------------------------|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Screw Lead (mm/rev) | 1 | 1 | 5 | 5 | 1 | 1 | 2 | 2 | 5 | 5 | 12 | 12 |
| Max Travel (mm) ¹ | 500 | 500 | 500 | 500 | 300 | 150 | 300 | 150 | 300 | 150 | 300 | 150 |
| Max Speed (mm/sec) ² | 10 | 10 | 50 | 50 | 10 | 10 | 20 | 20 | 50 | 50 | 120 | 120 |
| Rated Thrust (N) | 195 | 135 | 70 | 50 | 430 | 430 | 240 | 240 | 100 | 100 | 45 | 45 |
| Lead Accuracy (µm/mm) | 0.6 | 0.6 | 0.6 | 0.6 | 0.170 | 0.075 | 0.170 | 0.075 | 0.170 | 0.075 | 0.170 | 0.075 |
| Repeatability (µm) | 20 | 12 | 20 | 12 | 20 | 5 | 20 | 5 | 20 | 5 | 20 | 5 |
| Theoretical Resolution ³ | 0.00031 | 0.00031 | 0.00156 | 0.00156 | 0.00031 | 0.00031 | 0.00063 | 0.00063 | 0.00156 | 0.00156 | 0.00375 | 0.00375 |
| Straightness (µm) | Horizontal Plane: 25 µm Vertical Plane: 25 µm | | | | | | | | | | | |
| Load Capacity | Normal Load: 520 N Side Load: 520 N Roll: 6.5 Nm Yaw: 2.5 Nm Pitch: 2.5 Nm | | | | | | | | | | | |

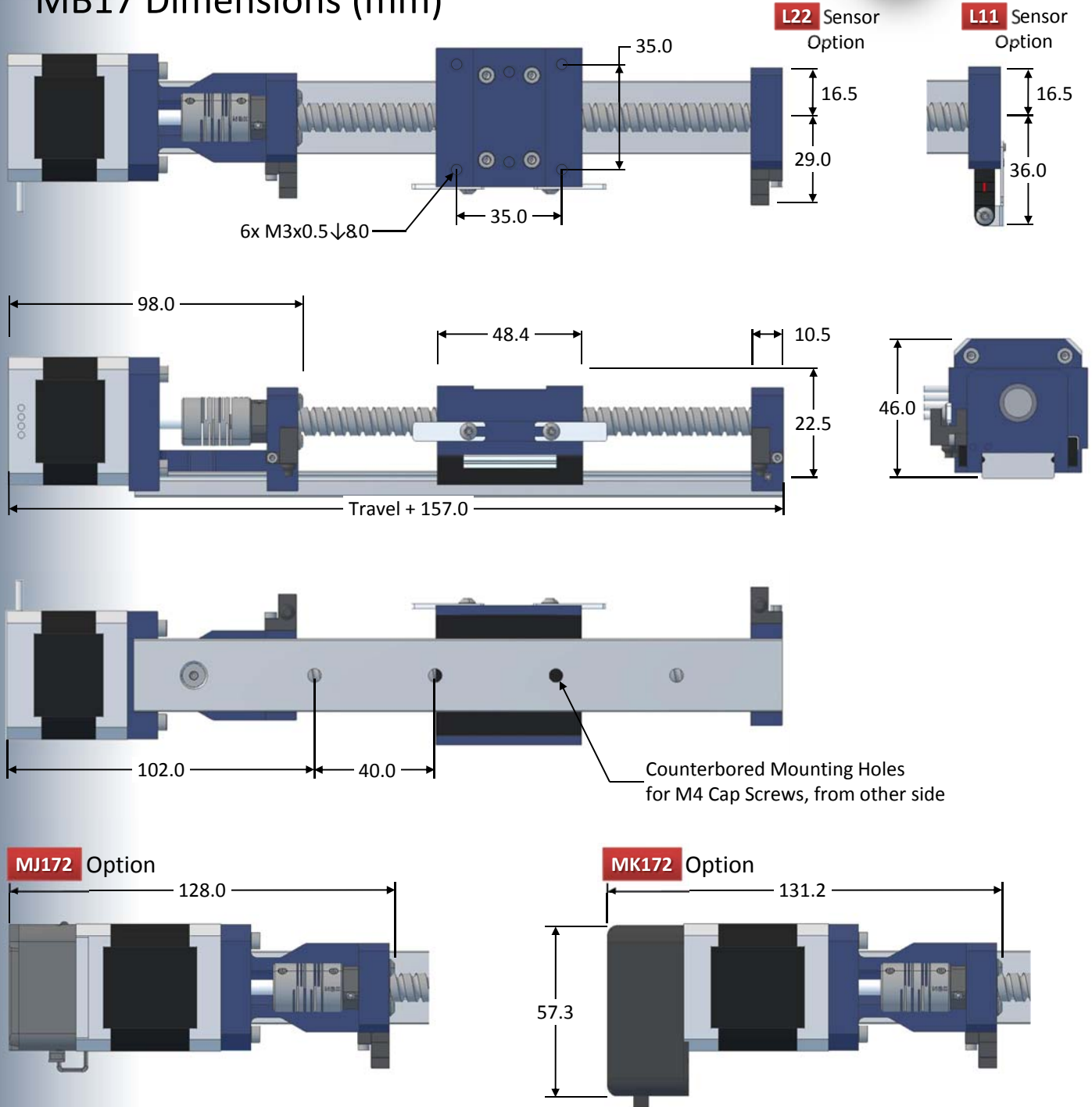
1) Based on 10 rps motor speed. Higher speed possible. 2) Consult factory for longer travels. 3) Based on 3200 steps/rev. Actual minimum step size will vary.



MB17 Series



MB17 Dimensions (mm)



3D Models available at
www.linearpositioningsystems.com/cad

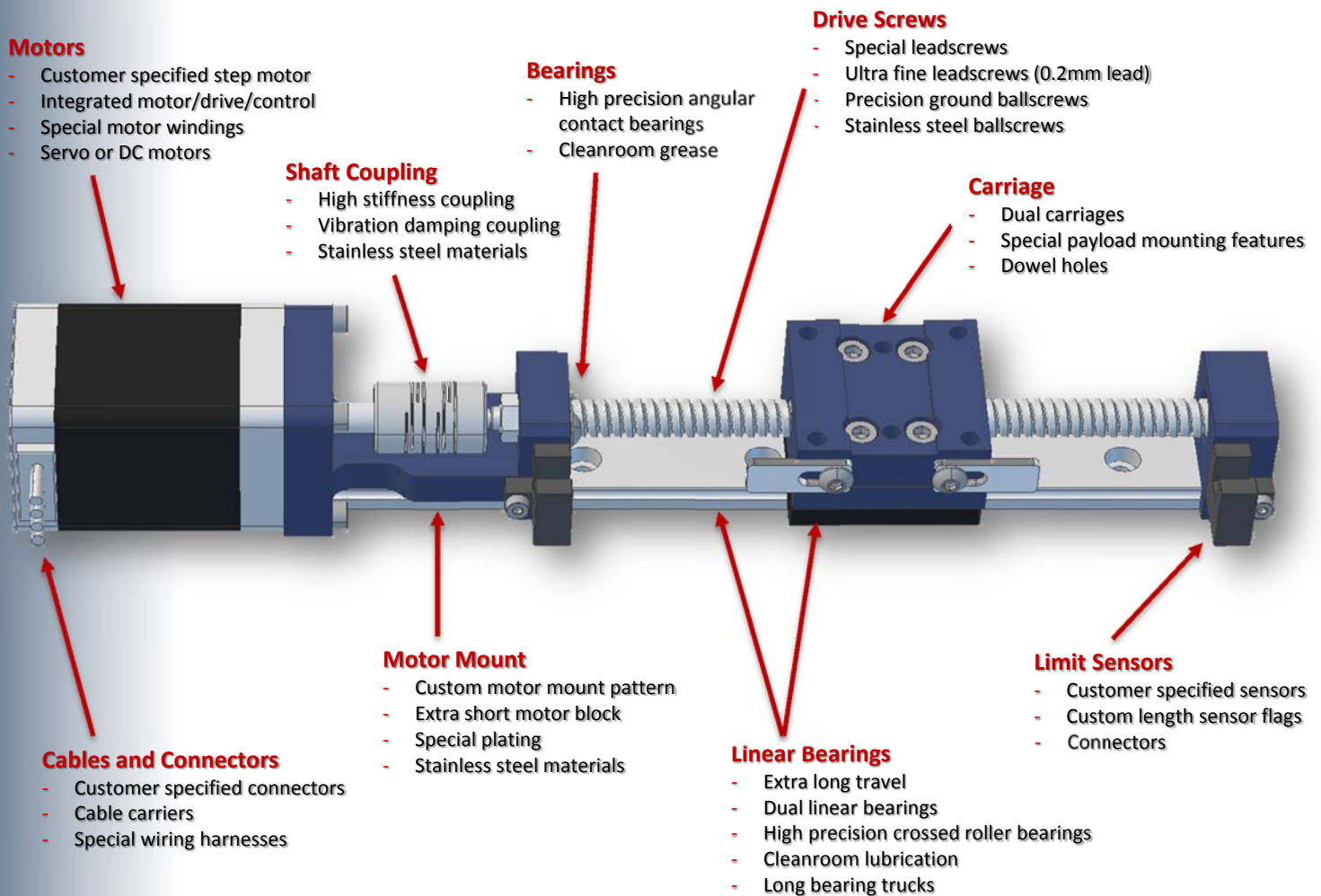


Minibot™ Series

Special Modifications

Especially for OEMs, sometimes the catalog product is not exactly what is needed due to space, environmental, or other reasons; and getting it exactly the way you need it is critical for optimizing cost, and minimizing time to market. In these instances, TPA is here to help. For OEMs with special requirements, we can modify our standard Minibot™ design or even design a completely new product to precisely fit your application.

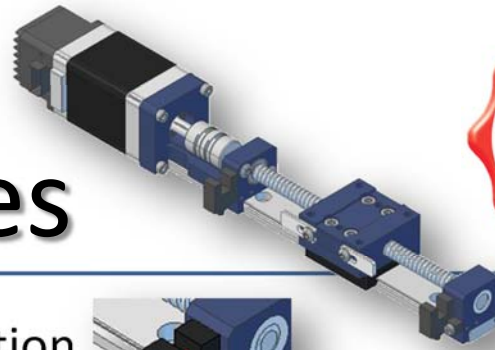
The following are some of the modifications we have or can do for you. If you do not see what you need, let us know.



3D Models available at
www.linearpositioningsystems.com/cad



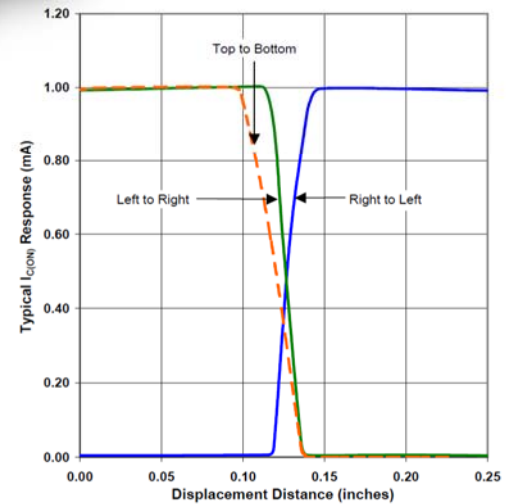
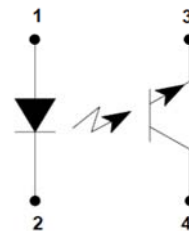
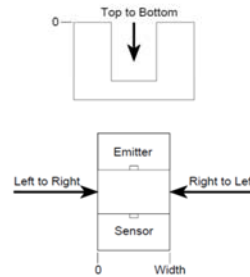
Minibot™ Series



L11 – OEM Slot Sensor Information

Ideal for OEMs that build their own control boards

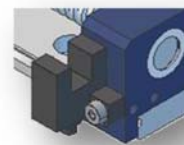
| | |
|-------------------|--|
| Sensor | Optek OPB880-P51Z |
| Input LED | Forward DC Current: 50mA Max Reverse DC Voltage: 2V Max Power Dissipation: 75mW Max $V_F=1.3V @ I_F=20mA$ |
| Output Transistor | Collector-Emitter Voltage: 30V Max Emitter-Collector Voltage: 5V Max Collector DC Current: 30mA Max Power Dissipation: 100mW Max $V_{(BR)CEO}=30V \text{ MIN } @ I_C=1mA$ $V_{(BR)ECO}=5V \text{ MIN } @ I_E=100\mu A$ $I_{CEO}=100nA \text{ Max } @ V_{CE}=10V, I_F=0, E_E=0$ |
| Coupled | $V_{CE(SAT)}=0.4V \text{ Max } @ I_C=400\mu A, I_F=20mA$ $I_{C(ON)}=0.5mA \text{ Min } @ V_{CE}=10V, I_F=20mA$ |
| Environmental | -40 to +85°C Non-condensing Humidity |
| Leads | 26 AWG, 24" Long |
| Material | Polysulfone IR Transmissive Shell |
| Mounting Fastener | M3x6 SHCS to Bracket M2x4 Phillips Cross Recess to Body |



| | |
|---|------------------------------|
| 1 | RED – Emitter Anode |
| 2 | BLACK – Emitter Cathode |
| 3 | GREEN – Transistor Emitter |
| 4 | WHITE – Transistor Collector |

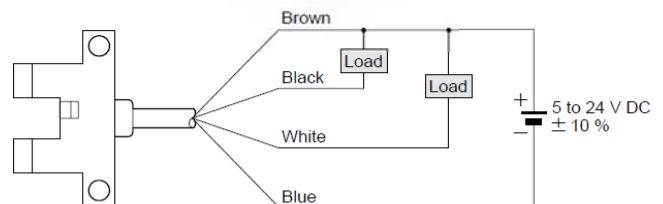
L22 – Industrial Slot Sensor Information

Ideal for wiring to motion controllers and PLCs



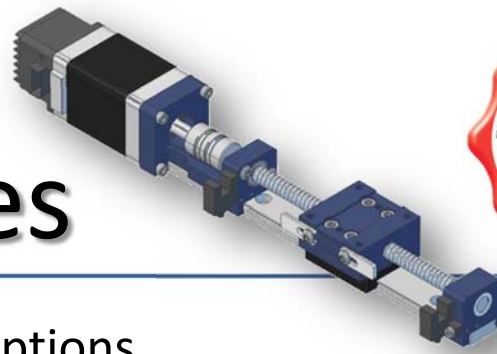
| | |
|-------------------|--|
| Power | 5 to 24VDC +/-10% 15mA or less |
| Output | NPN Open Collector Transistor Max Sink Current: 50mA Applied Voltage: 30VDC or less Residual Voltage (0.7V at 50mA) (0.4V at 16mA) |
| Repeatability | Unidirectional: 0.03mm or better Bidirectional: 0.05mm or better Response Time: 100µs or less |
| Environmental | -25 to +55°C, non-condensing humidity |
| Material | PBT and Polycarbonate |
| Mounting Fastener | M2x6 Socket Head Cap Screw |

Wiring diagram



Output operation

| | Color code | Output operation |
|----------|------------|------------------|
| Output 1 | Black | Light-ON |
| Output 2 | White | Dark-ON |



Minibot™ Series

M11x and M17x Step Motor Options

| | M112 | M111 | M113 | M172 | M171 | M173 |
|-------------------|--|------------------------|-------------------------|--------------------------|--------------------------|--------------------------|
| Rated Current | 0.67 A _{RMS} | 0.67 A _{RMS} | 0.67 A _{RMS} | 1.68 A _{RMS} | 1.33 A _{RMS} | 1.68 A _{RMS} |
| Resistance | 6.8 ohms ±10% | 5.6 ohms ±10% | 9.2 ohms ±10% | 1.65 ohms ±10% | 2.1 ohms ±10% | 1.65 ohms ±10% |
| Inductance | 4.9 mH ±20% | 4.2 mH ±20% | 7.2 mH ±20% | 3.2 mH ±20% | 2.5 mH ±20% | 2.8 mH ±20% |
| Rated Voltage | 4.56 V | 3.8 V | 6.2 V | 2.8 V | 2.8 V | 2.8 V |
| Step Angle | 1.8° ± 5%, Rotation CW from front | | | | | |
| Temperature | Ambient: -20°C to +50°C Max Rise: 80°C | | | | | |
| Rotor Inertia | 12E-7 Kg-m ² | 9E-7 Kg-m ² | 12E-7 Kg-m ² | 5.4E-8 Kg-m ² | 3.5E-8 Kg-m ² | 6.8E-8 Kg-m ² |
| Weight | 0.14 Kg | 0.11 Kg | 0.20 Kg | 0.28 Kg | 0.22 Kg | 0.35 Kg |
| Length | 44.5 mm | 31.5 mm | 50.5 mm | 40 mm | 34 mm | 48 mm |
| Mounting Fastener | M2.5 x 12 SHCS | | | M3 x 14 SHCS | | |
| Wires | 4x Leads, AWG26, 300mm Long; A+ (RED), A- (BLUE), B+ (BLACK), B- (GREEN) | | | | | |

MK112 , MK172 , MJ172 Integrated Controller/Drive Options

| | MK112 | MK172 | MJ172 |
|-------------------|--|---|---|
| Communications | RS485 | RS485/RS232 | USB 2.0 |
| Power | 12 to 24 VDC, 1.5 A max | 12 to 35 VDC, 2.5 A max | 12 to 24 VDC, 2.0 A max |
| Inputs | Limit+, Limit-, Home 12 to 24 VDC, NPN, 0.45 mA | Limit+, Limit-, Home, 6x Digital Inputs 12 to 24 VDC, NPN, 0.45 mA | Limit+, Limit-, Home, 2x Digital Inputs 12 to 24 VDC, NPN, 0.45 mA |
| Output | 1x Opto-isolated PNP Output +24 VDC Max; 90 mA Max | 3x Opto-isolated NPN Outputs +24 VDC Max; 90 mA Max | 2x Opto-isolated NPN Outputs +24 VDC Max; 45 mA Max |
| Resolution | 3200 Steps/rev max | 3200 Steps/rev max | 3200 Steps/rev max |
| Max Speed | 15 rps | 15 rps | 15 rps |
| Encoder | Integrated 256 count/rev (Optional: Single Turn Absolute) | Integrated 4000 count/rev | N/A |
| Operating Temp | 0°C to +70°C | 0°C to +70°C | 0°C to +85°C |
| Length | 65.5 mm | 65.5 mm | 63 mm |
| Mounting Fastener | M2.5 x 12 SHCS | M3 x 14 SHCS | M3 x 14 SHCS |

Contact TPA for additional details and product manuals