



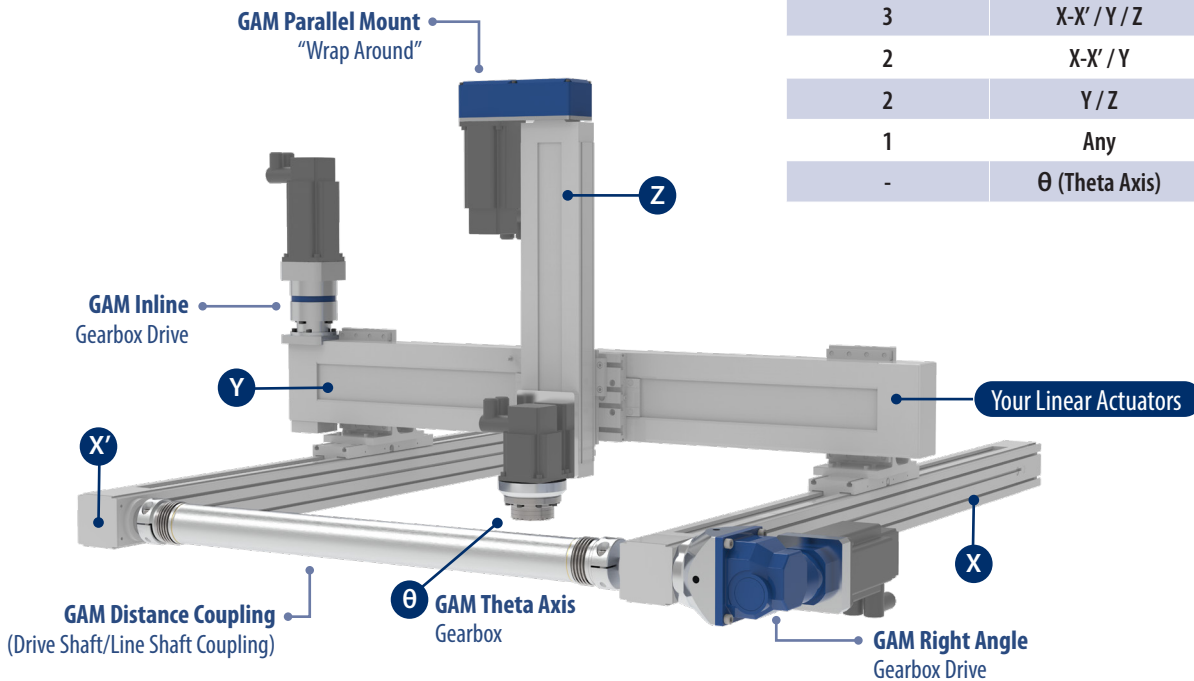
Mechanical Drive Solutions for Linear Systems

Everything between the Motor and the Actuator

Linear Systems

Linear actuator systems, such as belt actuators or ball screw drives, can be combined to form X-Y tables, gantries, or cartesian robots. There are different ways to drive one or more of these actuators. GAM makes it easy with components designed to simplify mounting a gearbox, motor, or other mechanical system to the linear actuators.

Types of Linear Systems		
Number of Axes	Axes	System Style
3	X-X' / Y / Z	Cartesian Robot
2	X-X' / Y	X-Y Table
2	Y / Z	Gantry
1	Any	Linear Actuator
-	θ (Theta Axis)	Wrist - Rotates Tooling



3-Axis Cartesian Robot with Theta (Wrist) Axis

Driving Linear Actuators

Once you've selected the best actuators for each axis of your application, you need to determine how to drive the actuators.

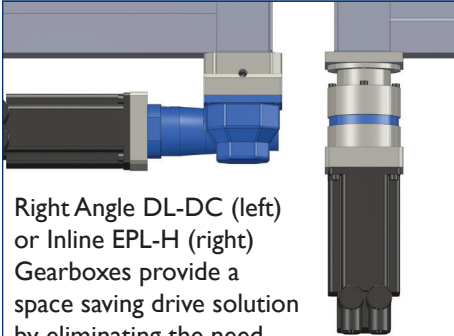
- What servo motors will you use?
- Do you require speed reduction between the motor and actuator?
- Do you have multiple actuators on a single axis (see X and X' above)?
- Will you be driving more than one actuator with a single drive?

GAM has multiple solutions for driving a single actuator and for driving multiple actuators from a single drive

Driving a Single Actuator

GEAR REDUCTION

Inline or Right Angle



Right Angle DL-DC (left) or Inline EPL-H (right) Gearboxes provide a space saving drive solution by eliminating the need for a coupling.

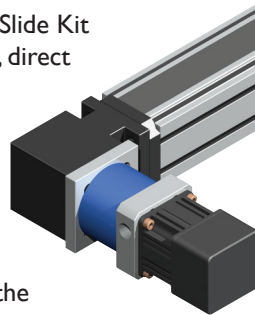
Includes zero-backlash clamping ring and adapter plate

DIRECT DRIVE

Inline

Use the Linear Slide Kit (LSK) for inline, direct drive of a ball screw or belt actuator.

Includes adapter plates customized to the motor and actuator and zero-backlash bellows or elastomer coupling

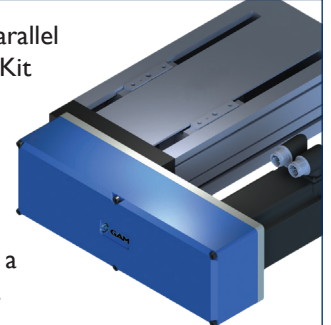


DIRECT DRIVE

Wrap-around

Use the Parallel Mounting Kit (PMK) for mounting a motor or gearbox parallel to a ball screw.

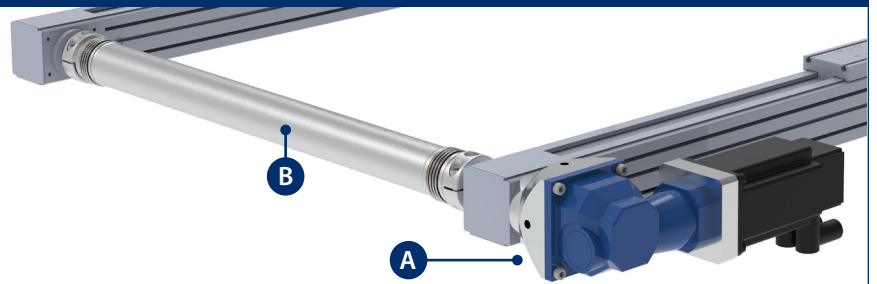
Customized to mount your motor and actuator



Driving Multiple Actuators

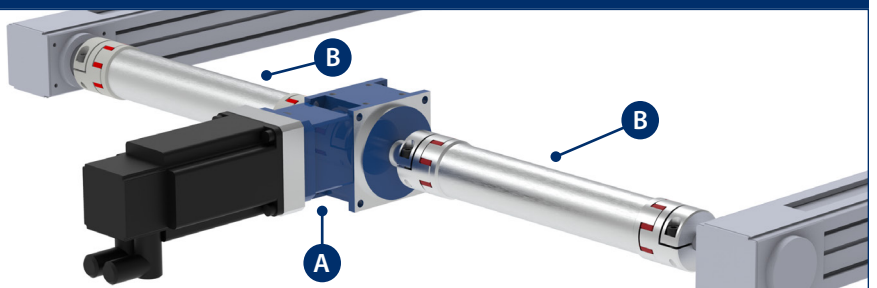
OUTSIDE DRIVE with Single Distance Coupling

Drive two actuators with one hollow output gearbox (A) on the actuator. Use a distance (line shaft/drive shaft) coupling (B) to drive the second actuator. No additional bearing support needed.



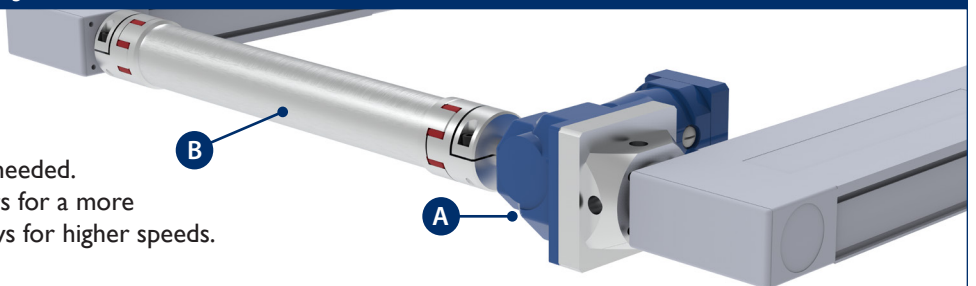
CENTER DRIVE with 2 Distance Couplings

Drive two actuators with one dual output gearbox (A). This can be a speed reducer or a 1:1 bevel gearbox. Use two distance (line shaft/drive shaft) couplings (B) to drive the actuators - no additional bearing support needed. This configuration allows for higher speeds due to the shorter couplings.



INSIDE DRIVE with Single Distance Coupling

Drive two actuators with a single dual output gearbox (A) mounted to one actuator and a distance (line shaft/drive shaft) coupling (B) to drive the second actuator - no additional bearing support needed. Mount the gearbox between the actuators for a more compact drive. The shorter coupling allows for higher speeds.





GAM's product range of robotic and servo gear reducers, rack and pinion, linear mount products, couplings, and other specialized mechanical drive solutions is one of the largest in the industry.

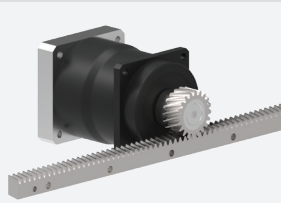
Choose from our standard products or let us customize a solution for your application. With our flexible manufacturing, we can cost-effectively produce small batches in short lead times.

GAM PRODUCTS FOR LINEAR SYSTEMS

High Precision Rack and Pinion Systems

Helical Rack & Pinion Systems

- High precision helical rack and pinions for smooth quiet operation.
- Precision pinions designed specifically for GAM gearboxes for optimized linear system performance
- GAM rack available separately or as part of a gearbox/pinion system



Theta (Wrist) Axis

Precision Theta Axis

Supplied with output flange or thru-hole for tooling and integral motor mount for your specific motor.

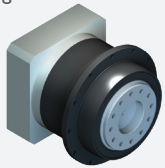


- High precision GSL strain wave gearbox with backlash ≤ 0.5 arcmin
- High speed EPL-F inline planetary gearbox with ratios as low as 3:1

Precision Inline and Right Angle Gear Reducers

SPH Series

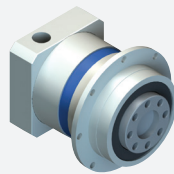
High performance inline planetary helical gearbox



- Backlash < 3 arcmin
- Torque capacity up to 900 Nm
- Radial load capacity up to 20,000 N
- Shaft or flange output

EPL Series

Performance inline planetary gearbox



- Backlash < 8 arcmin
- Torque capacity up to 340 Nm
- Radial load capacity up to 8,500 N
- Shaft, flange, or hollow output

EPR Series

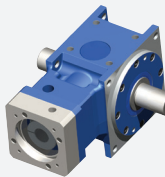
Performance right angle bevel planetary gearbox



- Backlash < 8 arcmin
- Torque capacity up to 340 Nm
- Radial load capacity up to 8,500 N
- Shaft, flange, or hollow output

Dyna Series

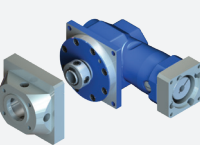
High performance right angle hypoid gearbox



- Backlash < 2 arcmin
- Torque capacity up to 1,400 Nm
- Radial load capacity up to 20,000 N
- Shaft, flange, or hollow output

Dyna-Lite Series

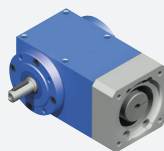
Performance right angle hypoid gearbox



- Backlash < 6 arcmin
- Torque capacity up to 140 Nm
- Radial load capacity up to 7,200 N
- Shaft or hollow output

V Series

Performance spiral bevel right angle gearbox



- Backlash < 15 arcmin
- Torque capacity up to 4,640 Nm
- Radial load capacity up to 34,200 N
- Single or dual shaft output

Mechanical Drive Solutions

Distance Couplings

- Drive shafts with lengths up to 20 ft
- Torque capacity up to 1,600 Nm



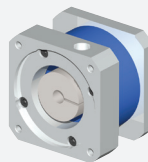
EDC Series
with Elastomer
Couplings



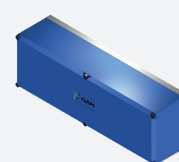
WDS Series
with Bellows
Couplings

Mounting Kits

Connect any motor or gearbox to any actuator



LSK
Linear Slide
Kit for inline
mounting



PMK
Parallel mounting
kit



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